

Jacquelyn K. Nagel, Ph.D.

Assistant Department Head & Associate Professor
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STATEMENT

My goal is to apply my multidisciplinary engineering knowledge and experience to drive engineering innovation in the areas of manufacturing, automation and control, sensing, energy, and sustainability.

I am a resourceful and results-driven electrical engineer with demonstrated ability to take initiative and work effectively in many technical areas. My approach to solving problems involves applying a systems perspective, thinking about information at different levels (e.g., detailed, bigger picture), and taking inspiration from other domains. I aim to work collaboratively on projects, lead or advise teams as well as participate as an active member in professional societies.

I am a self-aware leader that has engaged in professional development to understand and improve myself as well as to learn best practices. My CliftonStrengths are: Achiever, Analytical, Learner, Relator, and Significance. My FourSight thinking profile is Integrator (rare).

DEGREES EARNED

Doctor of Philosophy in Mechanical Engineering (June 2010)

- *Oregon State University – Corvallis, OR*
- Minor: Electrical Engineering
- Advisor: Dr. Robert B. Stone
- Dissertation: Systematic Design of Biologically-Inspired Engineering Solutions

Master of Science in Manufacturing Engineering (May 2007)

- *University of Missouri-Rolla (Renamed to Missouri S&T on 1/1/08) – Rolla, MO*
- Advisors: Dr. Frank W. Liou and Dr. Kelvin T. Erickson
- Thesis: Towards a Methodology For Integrated Freeform Manufacturing Systems Development With A Control Systems Emphasis

Bachelor of Science in Electrical Engineering with Honors, Magna Cum Laude (May 2005)

- *University of Missouri-Rolla – Rolla, MO*
- Emphasis: Control system theory and industrial control
- Senior Design Project: Unmanned air vehicle electrical systems design in partnership with an aerospace engineering senior design group

Associate of Science in Pre-Engineering with Honors, Suma Cum Laude (May 2002)

- *Kansas City Kansas Community College – Kansas City, KS*

LICENSING

Engineering Intern License (EIT) – Missouri (October 2008)

INDUSTRIAL EMPLOYMENT

Engineer III

Mission Critical Technologies – El Segundo, CA (Full time, Oct. 2010-August 2011; Consultant, Sept. 2011)

- Model library development to support system-level function, performance and reliability verification of complex defense and space systems

- Database and SQL query design
- Supported design tool integration into the verification work-flow

LFTD FMS/Instrumentation & Controls Engineering Intern

Intel Corporation – Hillsboro, OR (June 2009-Sep. 2009)

- Contributed daily to a development fabrication facility controls and automation engineering team
- Bench tested and field tested wireless instrumentation for the fabrication facility
- Bench tested new control technology that allowed integration of vendor preferred equipment
- Authored a white paper and developed procedures for new instrumentation and control technology
- Revised and validated a control system model in Simulink for the acid waste neutralization system

Advanced Systems Group Electrical Engineering Intern

Motoman Incorporated – Dayton, OH (May 2006-Aug. 2006)

- Assisted with the design, testing and validation of industrial robot work cells
- Actively utilized the NEC and ANSI/RIA 15.06
- Tested robot safety systems and work cell operations for failure and assisted with rectification
- Worked with and programmed Pilz Safety PLCs and robot concurrent I/O

Electrical Engineering Co-op 3rd Term

Kimberly-Clark Corporation – Neenah, WI (May 2004-Aug. 2004)

- Contributed to an electrical design team and a multidisciplinary development design team
- Designed remote I/O panels, operator stations, and fault logic in RSLogix 5000
- Coordinated all logistics for ordering parts, assembly, and installation for multiple projects

Electrical Engineering Co-op 2nd Term

Kimberly-Clark Corporation – Paris, TX (May 2003-Aug. 2003)

- Assisted with day-to-day operations and resolution of factory floor machine issues
- Reduced raw material splice waste by 9.51% across 10 machines and improved product quality
- Coordinated installation and implementation of a first of a kind stacker encoder filter package
- Facilitated installations, created all documents for roll-out procedures and coordinated resources

Electrical Engineering Co-op 1st Term

Kimberly-Clark Corporation – Paris, TX (Jan. 2003-May 2003)

- Assisted with factory floor instrumentation and PLC code upgrades, and machine optimization studies
- Facilitated installations, created all documents for roll-out procedures and coordinated resources
- Designed, developed and constructed all EE portions of the Pneumatic Adhesive Intermittent System Trainer (PAIST), all programming was in LabVIEW

ACADEMIC LEADERSHIP APPOINTMENTS

Assistant Department Head

James Madison University – Harrisonburg, VA (Aug. 2018-Present)

- Crafting the nation's best engineering learning environment for student impact
- Creating an excellent and diverse student body representative of Virginia's high school population
- Building out meaningful partnerships that bring relevant opportunities to our students
- Other duties as assigned

ACADEMIC APPOINTMENTS

Associate Professor

James Madison University – Harrisonburg, VA (Aug. 2017-Present)

- Teaching courses in engineering design and engineering science
- Facilitating interdisciplinary experiences
- Advising capstone project teams and research students

Assistant Professor

James Madison University – Harrisonburg, VA (Aug. 2011-2017)

- Teaching courses in engineering design and engineering science
- Advising capstone teams and research students

Ph.D. Graduate Research Assistant

Oregon State University – Corvallis, OR (Sept. 2009-June 2010)

Missouri University of Science & Technology – Rolla, MO (June 2007-Aug. 2009)

- Member of the Design Engineering Lab research team
- Research primarily focused on engineering design theory and methodologies, sensor design, biomimicry, and design tools to assist with biologically-inspired design
- Gained the ability to think abstractly about systems and information at different levels

M.S. Graduate Research Assistant

Missouri University of Science & Technology – Rolla, MO (Aug. 2005-May 2009)

- Member of the Laser Aided Manufacturing Process (LAMP) interdisciplinary research team
- Research primarily focused on instrumentation, data acquisition, controlling the LAMP system and rapid manufacturing system design
- Gained extensive knowledge of manufacturing processes and control

TEACHING EXPERIENCE

Engineering Design VI - ENGR 432

James Madison University (Jan. 21-May 21)

- Sixth course of the engineering design sequence; fourth term of four semester capstone experience
- Instilling professional practice through learning communities, reflection, and studio time
- Building professional networks through hosting alumni panels

Engineering Design V - ENGR 431

James Madison University (Aug. 20-Dec. 20)

- Fifth course of the engineering design sequence; third term of four semester capstone experience
- Coverage includes embodiment design with case studies and reflective assignments
- Building professional networks through hosting alumni panels

Circuits and Instrumentation - ENGR 313

James Madison University (Jan. 13-May 13, Aug. 14-Dec. 14, Jan. 15-May 15, Jan. 17-May 17, Aug. 20-Dec. 20)

- Instruction in static DC circuits, dynamic DC circuits, instrumentation fundamentals, AC circuits
- Supervise weekly laboratory portion of course
- Course is taken in the junior year

Mechatronics - ENGR 440

James Madison University (Jan. 16-May 16, Jan. 20-May 20)

- Technical elective course focused on sensors, actuators, and controllers from an industrial system/application perspective
- Taught practical sensor, actuator, and controller knowledge through experimental learning
- Taught PLC programming
- Students complete multiple industrial automation projects

Bio-inspired Design - ENGR 498

James Madison University (Jan. 18-May 18, Aug. 20-Dec. 20)

- Multidisciplinary technical elective course focused on the philosophy, processes, and tools and methods of biomimicry applied to technical problems

- Taught problem-driven and biology-driven approaches to bio-inspired design
- Students work in mixed teams to complete a final project

Engineering Design III - ENGR 331

James Madison University (Aug. 11-Dec. 11, Aug. 12-Dec. 12, Aug. 17-Dec. 17, Aug. 18-Dec. 18, ug. 19-Dec. 19)

- Third course of the engineering design sequence; first term of four semester capstone experience
- Coverage includes problem formulation, system requirement development, and technical communication (both written and oral)

Engineering Design IV - ENGR 332

James Madison University (Jan. 12-Dec. 12, Jan. 13-May 13, Jan. 14-May 14, Jan. 18-May 18, Jan. 19-May 19, Jan. 20-May 20)

- Fourth course of the engineering design sequence; second term of four semester capstone experience
- Coverage includes concept generation, evaluation, and selection that builds off of prior coursework and provides students with advanced methods and tools

Medical Innovations - ENGR 498

James Madison University (Jan. 15-May 15, Jan. 16-May 16, Aug. 17-Dec. 17, Aug. 19-Dec. 19)

- Technical elective course that focuses on addressing a community health issue
- Co-taught with instructors from Biology and Nursing
- Course centers around using maker space technologies and empathetic design

Engineering Design I - ENGR 231

James Madison University (Aug. 11-Dec. 11, Aug. 12-Dec. 12, Aug. 13-Dec. 13, Aug. 14-Dec. 14, Aug. 15-Dec. 15, Aug. 17-Dec. 17, Aug. 18-Dec. 18)

- First course of the engineering design sequence taken during sophomore year
- Instruction in developing project plans, problem clarification, customer needs analysis, concept generation, concept selection, and failure analysis
- Students begin the year-long human powered vehicle project for a local client with cerebral palsy

Engineering Design II - ENGR 232

James Madison University (Jan. 12-May 12, Jan. 14-May 14, Jan. 15-May 15, Jan. 16-May 16)

- First course of the engineering design sequence taken during sophomore year
- Instruction in analytical and physical prototypes, engineering analysis to inform design decisions, technical drawings, CAD, testing and refinement, life cycle analysis
- Students complete the year-long human powered vehicle project for a local client with cerebral palsy

MadE Residential Learning Community Fall - ENGR 280

James Madison University (Aug. 14-Dec. 14, Aug. 15-Dec. 15)

- Project-based course associated with the engineering residential learning community
- Taught systems and design thinking through a bio-inspired design quest
- Students design a game that addresses a learning issue experienced by 2nd/3rd graders

MadE Residential Learning Community Spring - ENGR 280

James Madison University (Jan. 15-May 15, Jan. 16-May 16)

- Seminar-based course associated with the engineering residential learning community
- Introduced topics of career and professional development and self-regulated learning in partnership with offices across campus
- Students design an ePortfolio

Introduction to Sensors - ENGR 498

James Madison University (Jan. 14-May 14)

- Technical elective course focused on sensor characteristics, types and transduction principles

- Practical sensor knowledge (e.g., reading a datasheet, selection) and hands-on experiments
- Industrial automation and mechatronic applications

Integrating Biology and Design for Sustainable Innovation

Virginia Tech (Jan. 14-Apr. 14)

- Collaborative and interdisciplinary teaching experience with colleagues at Virginia Tech
- Serving as the engineering expertise with experience in Bio-inspired design
- External advisor to the student teams

Systems Analysis - ENGR 413

James Madison University (Jan. 12-May 12, Aug. 12-Dec. 12, Aug. 13-Dec. 13)

- Blended instruction in system dynamics theory and linear control systems theory
- Instruction in classical and state-variable analysis methods in the laplace and frequency domains
- Mathematical modeling in Matlab and Simulink
- Course is taken in the senior year

Introduction to Electronic Devices Lab Teaching Assistant

Missouri University of Science & Technology (Jan. 09-May 09)

- Instructed sophomore level students on the basic theory and practical usage of select electronic devices: diodes, FETs, BJTs, LEDs, 555 Timers, resistors, capacitors and operational amplifiers
- Demonstrated laboratory equipment usage and measurement techniques
- Instructed students on circuit simulation and analysis with PSpice and Multisim software packages

Factory Automation Lab Instructor

Missouri University of Science & Technology (Jan. 08-May 08)

- Taught the lecture portion of the junior level elective course *Controls for Factory Automation*
- Supervised the laboratory portion of the course including the lab teaching assistants
- Prepared homework assignments, exams and laboratory materials
- Material covered included: Introduction to programmable automation, programmable logic controller (PLC) hardware, programming languages and techniques, case studies, demonstrations

Factory Automation Lab Teaching Assistant

Missouri University of Science & Technology (Jan. 05-Dec. 06)

- Taught multiple sections of the junior and senior level factory automation lab courses
- Assisted students in the lab across multiple PLC platforms with general PLC programming, PID control, HMI design with WonderWare, and PLC hardware installation and configuration
- Functioned as the bridge between the professor and students for assignments and lecture material
- Troubleshooting experience on Allen Bradley, Modicon, GE Fanuc and Siemens PLC Systems

UNDERGRADUATE ADVISING AND RESEARCH

Capstone Engineering Design Projects and Students Advised

- “Biomimicry Global Design Challenge Team.” (*Sept. 2020-May 2022*). Students: Kelly Riggan, Andrew Smith, Jeremy Lunn, Zach Mountjoy, Wesley Quill, Gage Waltner. **Competition: Biomimicry Institute Global Design Challenge.**
- “Inspection System for Railroad Safety.” (*Sept. 2019-May 2021*). Students: Ethan Keck, Cassidy Anderson, Adam Zahorchack, Jake Hinkle, Trevor Kraeutler, Lacklan Hudson, Zack Wenzler.
- “Biomimicry Global Design Challenge Team.” (*Sept. 2018-May 2020*). Students: Joshua Coursen, Elizabeth Tafoya, Tyler Wahl, Megan Dowgiallo, Kristen Russell, Andrea MacGregor. Co-advised with Dr. Adebayo Ogundipe. **Competition: Biomimicry Institute Global Design Challenge.**
- “Robotics for Spinal Surgery.” (*Sept. 2017-May 2019*). Students: Troy Fries, Alex Gellios, Stefanus Jatmojo, Cameron Robinson. **Company partner: K2M (now Stryker).**
- “Surgical Instrument Project.” (*Sept. 2017-May 2019*). Students: Jack Dominick, Nathaniel Lucas, Kerry McCullagh, Jason Renalds, Thomas Milkowski. Co-advised with Dr. Callie Miller. **Company partner: K2M (now Stryker).**

- "Medical Sterilization System for NASA Space Exploration Missions." (*Sept. 2015-May 2017*). Students: Zach Duda, James Watkins, Chris Graves, Quin Moore, JP Gaffney. **Company partner: NASA.**
- "Designing an Unmanned Drone to Deliver Rescue Supplies to Areas of Disaster." (*Sept. 2015-May 2017*). Students: Max Painley, Scott Stone, Joe Kellum, Adam Warren.
- "Harvesting Energy from Human Movement." (*Sept. 2014-May 2016*). Students: Collier Apgar, George Schmidt, Jacob Wild, Paul Revesman, David Hieronymus, Zach Patterson.
- "HVAC Analysis of MillerCoors Shenandoah Business Center." (*Sept. 2014-May 2016*). Students: Karl Braun, Dylan Chapman, Evan Eaves, Chris Giambri, Hunter Heavner, John Woodward. Co-advvisor: Kyle Gipson. **Company partner: MillerCoors.**
- "Lightweight Wheels." (*Sept. 2014-May 2016*). Students: Andrew Levering, Tyler Shaw, Wheeler Dey, Curtis Hendrick, Felipe Melivilu, Dan Carrier.
- "Wheelchairs for Haiti." (*Sept. 2013-May 2015*). Students: Catherine Hess, Joey Stoll, TJ McKeever, Jon Picart.
- "Robotic Assistive Technology for Friendship Industries." (*Sept. 2013-May 2015*). Students: Nic Henriksen, Rachny Soun, Sean Micucci, Jason Nembhard. **Company partner: Friendship Industries.**
- "Two-phase Energy System." (*Sept. 2012-May 2014*). Students: Ben Condro, Jack Cohran, and Eric Leaman.
- "Climate Adaptable Solar Energy System." (*Sept. 2012-May 2014*). Students: Nic Acton, Aaron Vazquez, Michael Hinton, Melissa Bernazani, and Jonathan Hill.
- "Modular Living Structure." (*Sept. 2012-May 2014*). Students: Malie Wood, Morgan Hager, Sojin Kim, and, Anase N'Gadi.
- "Robotic Platform for Photography." (*Sept. 2012-May 2014*). Students: Brian Bojarski, John Quackenbush, Blake Lumpkin, Evan Brown, Margret Robinson.
- "Electric Assist Bicycle Trailer." (*Aug. 2011-May 2013*). Students: Blake Anderson, Chad Earhart, Daniel Ford, Devin Imholte.
- "Robotic Teaching and Learning Platform." (*Aug. 2011-May 2013*). Students: Kritika Vayur, Michael Nguyen, Patrick Southerly, Pavan Panjeti.

Projects with Industry Partners and Students Advised

- "Mechanical Design of Robotic End Effector for Spinal Surgery." (*Fall 2019-Spring 2020*). Student: Sophia Cronin. Company partner: K2M.
- "Medical Sterilization System for NASA Space Exploration Missions." (*Summer 2016*). Student: Chris Graves. Company partner: NASA.
- "Machine Vision Adaptable to Changing Lighting Conditions Project." (*Spring 2015*). Students: Alex Donley, Sang "Paul" Cho. Company partner: Construction Robotics.

Honors and Thesis Projects Advised

- McInerney, Sarah (2018-**Present**) "Biomimicry hurdles to adoption and implementation within an Industrial Context." University of Akron (UA) Biomimicry PhD Fellowship Program. Committee: Dr. Peter Niewiarowski (Biology-UA), Dr. Joelle Elicker (Psychology-UA), Dr. Chris Miller (Engineering-UA), Dr. Jacquelyn Nagel (Engineering-JMU), and Mr. Thomas Weis (Industrial Design-RISD).
- Potts, B., (2016) "Enhancing Product Sustainability through Bio-inspired Design." JMU-UM (University of Malta) International Master's Program in Environmental Management and Sustainability, Capstone Project. Advisors: Dr. Jacquelyn Nagel (Engineering-JMU) and Dr. Louis Cassar (Institute of Earth Systems-UM).
- Groner, B., (2016) "The Role of Intrinsic Foot Muscles in Three Running Footwear Conditions." JMU Honors Project. Advisors: Dr. Olga Pierrakos (Engineering), Dr. Roshna Wunderlich (Biology), Dr. Jacquelyn Nagel (Engineering).
- Schmidt, G., (Incomplete) "Redesigning the External Defibrillator." JMU Honors Project. Advisors: Dr. Olga Pierrakos (Engineering), Jerry Weniger (Physician Assistant Studies), Dr. Jacquelyn Nagel (Engineering).

Other Student Projects Advised

- "Urge Industries StimU Panel." TEDI-London Summer School. Students: Aoife Lynch (Ireland), Nikita Talwaria (UK), Gabija Cepurnaite (Lithuania), Ranian Bahri (Indonesia), Dorcas Chu (Australia), Janzen Choi (Australia), Kiara Carroll (Australia). (*Summer 2020*) Project received honorable mention.
- "The Design and Applications of Powered Orthoses." Central High School Research Internship. (*Spring 2018*) Student: Hayley Wisman.
- "3-axis Gantry Robot for Teaching Motion Control." JMU Robotics Minor Project. (*2017-18 Academic year*) Student: Joseph Winn.
- "Candy Factory Design and Construction for Teaching Mechatronics." (*Summer 2015, Fall 2015*) Student: Tyler Shaw.

Undergraduate Research Supervised

Bio-inspired Design Research Projects:

Instructional Resources for Teaching Bio-inspired Design: To address the competencies of the future engineer undergraduate education must train students to not only solve engineering challenges that transcend disciplinary boundaries, but also communicate, transfer knowledge, and collaborate across technical and non-technical boundaries. One approach to train engineers in these competencies is teaching biomimicry or bio-inspired design in an engineering curriculum, which offers relevance to professional practice as well as an affective hook to frame complex, cross-disciplinary problems. This research focuses on the development of instructional resources that provide exposure to the abundance of design examples that can be found in nature, as well as scaffold the discovery and knowledge transfer processes such that those natural designs can be used to inspire engineering solutions. **Funded by an NSF IUSE-EHR Grant.**

- Jordan Capelle (*Fall 2018-Spring 2019*)
- Jessica Besnier (*Fall 2018-Spring 2019*)
- Tyler Wahl (*Fall 2018-Spring 2019*)
- Elizabeth Tafoya (*Spring 2017-Spring 2019*)
- Wade Knaster (*Spring 2017-Spring 2018*)
- Peyton Pittman, Engineering (*Spring 2015 - Spring 2018*)

Exploring the Application of Bio-inspired Design for Sustainable Design: The work aims to leverage biological principles of shape and form to achieve function to create design principles that can maximize existing additive manufacturing materials and methods. Key contributions of this research include approaches for additive manufacturing strategies such as material utilization and automation that align with a product's life cycle, thus increasing the sustainability of the product and the process. **Funded by a 4VA Scale Up Grant.**

- Mazna Bilal, Engineering (*Summer 2017-Spring 2018*)
- Braden Gross, Engineering (*Spring 2017*)
- Madison Anderson, Engineering (*Spring 2017-Fall 2017*)
- Katie McCullar, Biology (*Spring 2015 - Spring 2016*)
- Preston Rhodes, ISAT (*Fall 2015, Spring 2016*)
- John Nevin (*Spring 2016*)
- Chris Graves, Engineering (*Spring, Fall 2015*)
- Austin Underhill, Engineering (*Spring, Fall 2015*)
- Mark Castro, Engineering (*Fall 2015*)
- J. Michael Zurn, Engineering (*Fall 2015*)
- Katie Kelly, Bio-technology (*Spring 2015*)

Exploring the Connection Between Biological Form and Function for Bio-inspired Engineering Design

- Chris Graves, Engineering (*Fall 2014*)
- Austin Underhill, Engineering (*Spring 2014, Fall 2014*)

Qualitative Modeling Methods to Support Bio-inspired Design

- Brad Weidner, Engineering (*Fall 2012, Spring 2013, Fall 2014, Fall 2015*)

Biomimicry Design Tool Development

- Forrest Linsey, Biology (*Summer 2008*)
- Matthew Goeke, Engineering (*Summer 2008*)
- Forrest Linsey, Biology (*Summer 2007*)

Mechatronics Research Project:

Integrated Bearing Design and Control: The research is for a new concept in load carrying and control of rotating machinery. Journal Bearings (JBs) and Active Magnetic Bearings (AMBs) are both excellent bearings for high performance rotating machinery. JBs have large load carrying capacity and high damping, but are limited by the instability mechanism known as oil whirl and oil whip. AMBs are controllable and eliminate the need for an oil supply, but have lower load capacity and tend to be larger for the same load. This project aims to combine both bearings in a single bearing concept, where the superior load carrying capacity of JBs are to be exploited along with the controllability characteristics of AMBs that can be used to control the instability of JBs. This will result in a bearing concept with high load carrying capacity with controlled instability, and a smaller magnetic bearing that is not carrying any static load while providing the required control. **Funded by an NSF OSIE Grant.**

- Jacob Wild, Engineering (*Fall 2014 - Spring 2015*)
- Michael Caple, Engineering (*Fall 2014 - Spring 2015*)

Energy-focused Research Projects:

Bio-inspired Climate Adaptable Solar Energy System - Photovoltaic solar cell version

- Rouven Wendle, Engineering, German exchange student from HTW SAAR (*Summer 2015*)
- Devon Paysour, Matt Mason, Engineering (*Spring 2015*)
- Frederic Barth, Engineering, German exchange student from HTW SAAR (*Summer 2014*)

Bio-inspired Climate Adaptable Solar Energy System - Dye-sensitized solar cell version

- Jerney Davis, Engineering (*Fall 2014 - Spring 2015*)
- Nic Acton, Aaron Vazquez, Michael Hinton, Melissa Bernazani, and Jonathan Hill, Engineering (*Fall 2012 - Spring 2014*)

Two-phase Energy System: To design solar energy systems with the smallest environmental impact over its life cycle is an essential challenge for sustainability. A fundamental approach to decreasing the environmental impact of a solar energy system is to reduce the toxic, non-recyclable and recyclable, materials within, and maximize the lifetime of each component to reduce waste. This project focuses on replacing chemical batteries with a fluid-based energy storage and generation system to increase the sustainability of the renewable energy system. **Funded by a Valley 25 x '25 Program Grant.**

- Eric Leaman, Engineering (*Fall 2012 - Spring 2014*)
- Jack Cochran, Engineering (*Fall 2012 - Spring 2014*)
- Ben Condro, Engineering (*Summer 2012*)

SERVICE ACTIVITIES

Professional and Honors Organizations

- Society of Women Engineers, Senator (*2018-2021*)
- Society of Women Engineers Members-At-Large, Newsletter Editor (*2017-2019*)
- Society of Women Engineers Members-At-Large, Vice President (*2015-2016*)
- Society of Women Engineers Strategic Planning Committee, Chair (*2015-2016*), Chair-elect (*2014-2015*)
- Society of Women Engineers JMU Collegiate Section, Faculty Advisor (*2012-Present*)
- Society of Women Engineers Women in Academia Committee, Chair (*2013-2014*), Member (*2012-Present*)
- ASME Junior Girl Scout Workshop on Mechanical and Design (*2016*)
- Society of Women Engineers Region E, Members-At-Large Alternate Representative (*2014-2016*)
- Society of Women Engineers Members-At-Large, Secretary (*2013-2015*)

- ASME IDETC/CIE Division of Engineering Design Broadening Participation Committee (2013-2019)
- ASME IDETC/CIE Student and Early Career Professionals Committee (2013)
- Society of Women Engineers Region E, Members-At-Large Representative (2012-2014)
- IEEE MGA Awards and Recognition Committee (2013, 2012)
- IEEE MGA ARC Award Descriptions/Criteria Subcommittee, Chair (2013, 2012)
- Society of Women Engineers National Conference Program Board, Liaison to the Collegiate Interest Committee (2009-2012)
- IEEE-USA Discoveries & Breakthroughs Inside Science Editorial Board (2009-2011)
- IEEE-USA Annual Meeting Volunteer (2009)
- Society of Women Engineers National Conference Volunteer (2008, 2004)
- Society of Women Engineers National Conference Program Board, Women in Academia Representative (2012-2013), Member (2006-2012)
- IEEE Greater St. Louis WIE/GOLD Section: Activities Co-Chair (2005-2006)
- Eta Kappa Nu, Bridge Correspondent (2004), Regional Conference Committee (2007)
- Society of Women Engineers Collegiate Section, President (2004-2005), Corresponding Secretary (2003-2004)
- Phi Theta Kappa, Executive Officer of the Board (2001-2002), *Service Committee* (2001)

Invited Opportunities

- Project mentor and senior lecturer for the TEDI London Summer School (2020)
- Advisory Council Member for AskNature | The Biomimicry Institute (2018-**Present**)
- Guest editor for special issue of journal Designs (ISSN 2411-9660) on Advances in Biologically Inspired Design (2018-2019)
- Catalyst (Lead) for the NASA VINE Biomimicry Systemology Cluster (2017-**Present**)
- Guest editor for special issue of IEEE HKN The Bridge (ISSN 0006-0808) on Biologically Inspired Engineering (2016)
- Guest editor for special issue of journal Electronics (ISSN 2079-9292) on Electronic-based Bio-Inspired Designs (2014-2015)
- Member of Development Review Team of Biomimicry Institute AskNature.org website (2015)
- Guest writer for IEEE-USA eBook series on Women in Engineering - Book 4: Follow Your Curiosities - Finding Success Through Learning (2014)

Technical Conference Service

- Manuscript reviewer for the ASEE Conference and Exposition (2021, 2020, 2019, 2018, 2017, 2016, 2015, 2012)
- Manuscript reviewer for ASME's International Conference on Design Education (2021, 2020, 2019, 2016)
- NASA Biocene Workshop Planning Committee (2020, 2019)
- Manuscript reviewer for ASME's Design for Manufacturing and Life Cycle Conference (2019, 2017, 2009)
- Manuscript reviewer for LACCEI Annual Conference (2017)
- Manuscript reviewer for the International Conference on Case-based Reasoning, Computational Analogy Workshop (2016)
- Review coordinator for ASME's International Conference on Design Education (2016)
- Workshop Chair for ASME IDETC/CIE Division of Engineering Design Broadening Participation Committee (2014)
- Judge for Designing for the Future Competition, International Conference on Design Education (DEC) of ASME IDETC/CIE (2015, 2014)
- ASME IDETC/CIE Student and Early Career Professionals Committee (2013)
- Abstract reviewer for the IEEE Systems and Information Engineering Design Symposium (SIEDS) (2014, 2015, 2016)
- Review coordinator for ASME's Design Theory and Methodology Conference (2014, 2013, 2012, 2011)

- Manuscript reviewer for ASME’s Design Theory and Methodology Conference (2014, 2013, 2012, 2011, 2010, 2009)
- Manuscript reviewer for ASME’s Design Automation Conference (2014)
- Manuscript reviewer for the International Conference on Engineering Design (ICED) (2013, 2009)
- Session Chair for ASME’s Design Theory and Methodology Conference (2013, 2012, 2011)
- Session Chair for ASME’s Design Education Conference (2012)
- Manuscript reviewer for ASME’s Biomimetic and Bioinspired Technologies track of the IMECE Conference (2011)

Technical Reviewer

- Manuscript Reviewer for the journal Design Science (2021,2016)
- Manuscript Reviewer for the journal Biomimetics (2018)
- Manuscript Reviewer for the Journal of Engineering Education (2018)
- Manuscript Reviewer for the International Journal of Design Creativity and Innovation (2017)
- Manuscript Reviewer for the journal Sensors (2014-**Present**)
- NSF Panel Reviewer, DUE: IUSE electronic panel (August 2014)
- NSF Panel Reviewer, Small Business Innovation Research/Small Business Technology Transfer Program, “Instrumentation” Phase I SBIR/STTR panel (Feb. 27, 2014)
- Manuscript Reviewer for Journal of Engineering Design (2014)
- Manuscript Reviewer for Journal of Mechanical Design (2013-**Present**)
- Manuscript Reviewer for the Journal Artificial Intelligence for Engineering Design, Analysis and Manufacturing (2013-**Present**)
- Manuscript Reviewer for the journal Micromachines (2013)
- Manuscript Reviewer for the Journal of Mechanical Science and Technology (2013)
- Manuscript Reviewer for the Journal of Machinery Manufacturing and Automation (2013)
- Book chapter reviewer for the book *Biologically Inspired Design: Computational Methods and Tools* edited by Dr. Goel, Dr. McAdams, and Dr. Stone (Summer 2012)
- Invited reviewer for the chapter “Artificial Senses & Organs-Natural Mechanisms & Biomimetic Devices” for the upcoming book *Biomimetics: Nature-Based Innovation* edited by Dr. Bar-Cohen (Fall 2010)
- Manuscript Reviewer for Sensor Review (2009-2012)
- Manuscript Reviewer for IEEE Potentials (2009-2012)

Community Engagement, Outreach and Judging

- Expanding Your Horizons Workshop Leader–Marooned: Engineering a Solution to Get Home, James Madison University (March 2019, 2018)
- STEM Capstone Presentation Judge, Turner Ashby High School, Harrisonburg, VA (May 2016)
- 3rd Annual K-12 STEM Educators Conference Session - Inspiring Tomorrows Engineers, James Madison University (Feb. 2016)
- Rockingham County Public School STEM Committee Member, Harrisonburg, VA (Aug. 2015-May 2017)
- Inspiring Future Engineers through IEEE-USA Women in Engineering eBook Compilation (Vol. 1) Dissemination Project (2015-2017)
- Society of Women Engineers High School Girls Outreach Day - Circuits Activity, James Madison University (Nov. 2015, 2014)
- Biomimicry Global Design Challenge Judge, Biomimicry Institute (2015)
- Space Explorers Camp Workshop Co-Leader with Robert Nagel - Human Centered Design, James Madison University (July 2015)
- Members At Large Awards Judge, Society of Women Engineers (2015)
- Outstanding Collegiate Section Award Judge, Society of Women Engineers (2015, 2014)
- Expanding Your Horizons Workshop Leader–Engineering Candy Bridges, James Madison University (March 2017, 2016, 2015, 2014, 2013, 2012)
- Graduate Student Rapid Fire Research Talk Session Judge, Society of Women Engineers Region E Conference (2015)

- Lockheed Martin Women in Engineering Day, Manassas, VA (2013)
- Thomas Harrison Middle School STEM Academy Day at JMU Workshop Co-Leader, James Madison University (December 2012)
- Bridging the Valley: A Step Ahead for STEM Majors program engineering session instructor, James Madison University (Summer 2013, 2012, 2011)
- Virginia/DC First Lego League Regional Competition Volunteer, James Madison University (2013, 2012, 2011, 2010)
- Design Competition Judge, ASME Region D Student Professional Development Conference, Oregon State University (2010)
- CBEE Outreach: Family Science and Engineering Night Volunteer, Oregon State University (2010)
- It's a Girl Thing Pre-College Camp Workshop Leader - Cinderella Project, Missouri University of Science & Technology (2008)
- Expanding Your Horizons Volunteer, Missouri University of Science & Technology (2009, 2005)
- Summer Solutions Pre-College Camp Workshop Leader - Cinderella Project, Missouri University of Science & Technology (2008, 2007, 2005)
- Society of Women Engineers High School Girls Lock-In Volunteer, Missouri University of Science & Technology (2005, 2004, 2002)

University and College

- Member of the James Madison University, University Career Center, Director for Employer Outreach and Development Search Committee (March - May 2021)
- Member of the James Madison University, CISE Technology Steering Committee – Engineering representative (January 2017 - May 2020)
- Member of the James Madison University, Expanding Your Horizons (EYH) Advisory Board (August 2016 - **Present**)
- Member of the James Madison University, COACHE Working Group (Aug. 2015 - May 2017)
- Member of the James Madison University, Department of Computer Science, Faculty Search Committee (Aug. 2015 - May 2016)
- Elected member of the James Madison University, College of Integrated Science and Engineering, Faculty Council (Aug. 2013 - May 2015)
- Member of the James Madison University, College of Integrated Science and Engineering, Dean Search Committee (Aug. 2013 - April 2014)
- Member of the James Madison University, College of Integrated Science and Engineering, Diversity Committee (Aug. 2012 - May 2014)
- Member of the James Madison University, Robotics Minor Committee (Aug. 2011 - **Present**)
- UMR Student Diversity and Women's Leadership Office - Night to Network Host (Spring 2005)
- Kansas City Kansas Community College Student Ambassador (2001-2002); Academic Excellence Team (2001-2002)

Department

- Assistant Academic Unit Head, Department of Engineering, Personnel Advisory Committee (Jan. 2018 - **Present**)
- Member of the James Madison University, Department of Engineering, Personnel Advisory Committee (Aug. 2017 - May 2020)
- Chair of the James Madison University, Department of Engineering, Faculty Search Committee (Aug. 2017 - May 2018)
- Chair of the James Madison University, Department of Engineering, International Working Group (Aug. 2015 - May 2016)
- Member of the James Madison University, Department of Engineering, Faculty Search Committee (Aug. 2015 - May 2016)
- Member of the James Madison University, Department of Engineering, ENGR 112 Committee (Aug. 2014 - May 2015)
- Member of the James Madison University, Department of Engineering, Faculty Search Committee (Aug. 2013 - March 2014)

- Member of the James Madison University, Department of Engineering, Department Work-Life Balance Committee (*Aug. 2013 - May 2014*)
- Member of the James Madison University, Department of Engineering, Curriculum & Instruction Committee (*Sept. 2012 - May 2013*)
- Chair of the James Madison University, School of Engineering, FE Exam Preparation Committee (*Aug. 2011 - May 2013*)
- Member of the James Madison University Virtual College Social Committee (*Sept. 2011 - May 2012*)
- Member of the James Madison University, School of Engineering, Systems Analysis Course Committee (*Aug. 2011 - Sept. 2011*)

PROFESSIONAL DEVELOPMENT ACTIVITIES

Pedagogy Focused Activities

Workshop Leader:

- Bio-inspired Design Pedagogy 101, ASEE Annual Conference and Expo (*July 2019*)
- NSF Funded Summit, James Madison University
 - Global Sustainability in Engineering Education - Co-lead with Robert Nagel (JMU), Ivan Esparragoza (Penn State), Linda Schmidt (UMD), Jorge Rodriguez (UWM) (*March 2016*)
- Faculty Development Workshop, James Madison University
 - Interprofessional Innovations in Teaching - Co-lead with Patrice Ludwig and Erica Lewis, JMU May Symposium (*May 2015*)
 - Promoting Diversity in Engineering Through Community Engagement - JMU May Symposium (*May 2015*)
 - Naturally Curious? - Co-lead with with Brook Kennedy (VT), Marta Bechtel (JMU). JMU May Symposium (*May 2014*)
 - Facilitating Deep Learning in the Classroom - Co-lead with Rory DePolis, Melissa Rittenhouse. JMU May Symposium (*May 2013*)
 - Not all Problems are Created Equal - Co-lead with Olga Pierrakos, Robert Nagel, Eric Pappas, Elise Barrella, Kyle Gipson, JMU May Symposium (*May 2013*)

Participant:

- ASEE webinar - Question Formulation Technique (*Dec. 2018*)
- KEEN Workshop - Essential Question Curriculum Design (*Aug. 2017*)
- Center for Faculty Innovation, James Madison University
 - jmuDESIGN Virtual Edition (*June 2020*)
 - Evaluating Writing: When to Comment, What to Say, and How to Use Rubrics (*May 2018*)
 - When is too much not enough? Using cognitive theories of learning to shape instructional choices (*May 2017*)
 - POGIL Institute (*May 2016*)
 - Reflective and Effective: Ending the Semester on a High Note (*May 2015*)
 - Designing Assignments Lockdown (*May 2013*)
 - Corporate Partners: Opportunities for Engagement and Collaboration (*May 2013*)
 - Protecting and Commercializing Your Scholarship roundtable (*May 2013*)
 - Increasing Student Motivation: Strategies that work (*May 2013*)
 - Writing Effective Application Exercises: A Means to Model Habits of Mind (*May 2012*)
 - Gathering and Using Formative Feedback (*May 2012*)
 - Resilient Teaching (*Mar. 2012*)
 - Creating a Course with a Promise with Ken Bain (*Feb. 2012*)
 - Learner-Centered Teaching with Maryellen Weimer (*Oct. 2011*)
 - Exam-Writing 101, Aligning Tests with Learning Outcomes (*Sept. 2011*)
- Frontiers of Engineering Education (FOEE) Symposium, National Academy of Engineering (*Oct. 2013*)
 - Innovation: Development of an Innovative Multi-disciplinary Course in Systems Analysis
- Madison Teaching Fellowship on Deep Learning, James Madison University (*2011-2013*)
- Center for Teaching & Learning Workshops, Oregon State University (*Spring 2010*)

- 15 Survival Skills for Instructors
- Discover your Teaching Philosophy
- An Introduction to the Living Course

Workshop Attendance

- VentureWell-KEEN Infusing Sustainability into the Curriculum (ISIC) Workshop (November 2020)
- Biocene Virtual Workshop (*Oct 2020*)
- Olin Virtual Summer Institute (*June 2020*)
- Biocene Tools Workshop (*Sept 2019*)
- KEEN FIRE Workshop - Faculty Industry Relationships (*June 2019*)
- KEEN Leadership Advance (*May 2019*)
- ASME IDETC Workshop - Managing your Academic Career Like an Entrepreneur (*Aug. 2015*)
- SWE Academic Leadership Summit (*Oct. 2014*)
- NSF Workshop - Writing CAREER Proposals (*Aug. 2014*)
- ASME IDETC Workshop - Mutual Mentoring (*Aug. 2014*)
- ASME IDETC Workshop - How to Feel as Bright and Capable as They "Think" You Are: Why Capable People Suffer from the Impostor Syndrome and How to Thrive in Spite of It (*Aug. 2013*)
- PASI 2013 Workshop - Manufacturing Innovation through Sustainable Design (*July 2013*)
- Biomimicry Educators Workshop at the 7th Annual Education Summit and 1st Global Conference - Introduction to Biomimicry in Education (*2013*)
- James Madison University CISE Workshop - Recruiting Women in Sci/Tech/Engr (*Dec. 2012*)
- SWE Conference Workshop – Quick Tips for Teaching Engineering (*Oct. 2011*)
- ASME IDETC Workshop - Engineering Effective Presentations (*Aug. 2012*)
- James Madison University CISAT Workshop - Recruiting and Retaining Women in Sci/Tech/Engr (*Aug. 2011*)
- Society of Women Engineers Webinar - Managing Overwhelm Parts 1& 2 (*June 2011*)
- NSF Bio-Inspired Workshop: Charting a Course for Computer-Aided Bio-inspired Design Research (*March 2011*)
- ASME IDETC Workshop - Effective Negotiation Skills (*Sept. 2009*)

Conference Attendance

- KEEN National Conference (*2021, 2018*)
- INCOSE International Workshop (*2021, 2019, 2018*)
- REMOTE: The Connected Faculty Summit (*2021, 2020*)
- The Capstone Conference (*2021, 2020*)
- ASEE Annual Conference and Expo (*2019, 2017, 2015, 2012*)
- Mid-atlantic Undergraduate Research Conference (*2019*)
- WE Local Conference (*2019 - Baltimore*)
- Society of Women Engineers Annual Conference (*2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2009, 2008, 2007, 2006, 2004, 2002*)
- 11th International Workshop on Design Theory - Special Interest Group of the Design Society (*2018*)
- 2nd Annual Nature-inspired Exploration for Aerospace Biomimicry Summit (*2017*)
- Envisioning the Future of Undergraduate STEM Education: Research & Practice Symposium (EN-FUSE) (*2016*)
- Association of American Colleges & Universities (AAC&U) Crossing Boundaries: Transforming STEM Education Conference (*2015*)
- ASME IDETC/CIE (*2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008*)
- IEEE SIEDS (*2017, 2015, 2014*)
- Society of Women Engineers Region Conference (*2016, 2015, 2014, 2005, 2003*)
- Biomimicry Institute 7th Annual Education Summit and 1st Global Conference (*2013*)
- VMI Environment Virginia Symposium (*2013*)
- VCU Energy and Sustainability Conference (*2013*)
- EPA P3 National Sustainable Design Expo (*2012*)
- JMU Valley 25x'25 Renewable Energy Symposium (*2012*)

- Biomimicry 3.8 Institute 1st Annual Biomimicry in Higher Education Webinar Conference (2011)
- IEEE-USA Annual Meeting (2009)
- Eta Kappa Nu Regional Conference (2007)

AWARDS, HONORS & RECOGNITION

NSF: Advancing STEM Careers By Empowering Network Development (ASCEND) Faculty Fellow (2020-2024)

TEDI-London Summer School: Invited Project Mentor and Senior Lecturer (2020)

Society of Women Engineers: Member-at-Large Outstanding MAL Leader Award (2019)

KEEN: 5th Place in the ASEE Best Card Competition (2019)

Society of Women Engineers: Distinguished New Engineer Award (2016)

Society of Women Engineers: Collegiate Section Award - Silver Level for the JMU Collegiate Section (2016)

ASME Additive Manufacturing & 3D Printing (AM3D) Conference: Best Poster Award (2015)

Society of Women Engineers: Outstanding New Collegiate Section Award for the JMU Collegiate Section (2015, 2014)

Society of Women Engineers: Member-at-Large Rising Star Award (2014)

Society of Women Engineers: Member-at-Large Best Newsletter Article Award (2014)

Marquis Who's Who: Selected for Who's Who in America 68th Edition (2014)

James Madison Innovations, Inc.: JMU Intellectual Property Disclosure Incentive Program, Awarded one of the Top 5 IP disclosures for 2012-13 (2014)

National Engineer's Week Foundation: New Faces of Engineering Award, nominated by IEEE-USA (2012)

James Madison University: Madison Teaching Fellowship on Deep Learning (2011-2012)

Marquis Who's Who: Selected for Who's Who in America 65th Edition (2011)

ASME: IDETC/CIE Conference Student Competition Winner (2010, 2009)

National Science Foundation: Travel Grant to attend ASME IDETC/CIE (2009)

Missouri University of Science & Technology: Chancellor's Fellow (2007-2009)

Society of Women Engineers: Graduate Student Poster Competition Finalist (2009, 2008, 2007)

University of Missouri-Rolla: Intelligent Systems Center 1st Annual Research Symposium-1st Place (2007)

Society of Women Engineers: Caterpillar Scholarship (2007)

Instrumentation, Systems and Automation Society: Educational Foundation Scholarship (2006)

Eta Kappa Nu: Alton B. Zerby and Carl T. Koerner Outstanding Senior Electrical and Computer Engineering Student Honorable Mention (2005)

University of Missouri-Rolla: Women in Science and Engineering Transfer Scholarship (2002-2003)

Who's Who: Selected for Who's Who Among Students in American Junior Colleges 37th Edition (2002)

Phi Theta Kappa: International Most Distinguished Chapter of Phi Theta Kappa award, Mu Delta (2002)

Phi Theta Kappa: Internationally Distinguished Member Award (1 of 25) (2001)

Phi Theta Kappa: Presidential Scholarship (2000-2002)

PUBLICATIONS

Peer Reviewed Book Chapters

1. **Nagel, J.K.S.**, Rose, C., Beverly, C.L., Pidaparti, R. (2019) Bio-inspired Design Pedagogy in Engineering, Chapter 7 in *Design Education Today*, Schaefer, D., Coates, G., Eckert, C. (eds.), Springer Nature, ISBN 9783030171339.
2. **Nagel, J.K.S.** (2014) "A Thesaurus for Bioinspired Engineering Design." Chapter 4 in *Biologically Inspired Design: Computational Methods and Tools*, A. Goel, D.A. McAdams, R.B. Stone (eds.), Springer, ISBN: 1447152476.
3. **Nagel, J.K.S.**, Stone, R.B., McAdams, D.A. (2014) "Function-based Biologically-Inspired Design." Chapter 5 in *Biologically Inspired Design: Computational Methods and Tools*, A. Goel, D.A. McAdams, R.B. Stone (eds.), Springer, ISBN: 1447152476.

Invited Book Chapters

1. Behdad, S., Sabbaghi, M., **Nagel, J.K.S.** (2018) "Sustainable Manufacturing." Yoseph Bar-Cohen (Ed.). Chapter in *Advances in manufacturing and processing of materials and structures*, CRC Press/ Taylor & Francis Group. ISBN: 9781138035959.
2. **Nagel, J.K.S.**, Liou, F.W. (2012) "Hybrid Manufacturing System Design and Development." Faieza Abdul Aziz (Ed.). Chapter in *Manufacturing System*, pp. 223-246, In-tech, Croatia. ISBN:9799533074930.
3. **Nagel, J.K.S.**, Stone, R.B., McAdams, D.A. (2010) "Function-Based Biology Inspired Concept Generation." Chapter 5 in *Biomimetics, Learning From Nature*, pp. 93-116, In-tech, Croatia. ISBN:9789533070254

Peer Reviewed Journal Articles

1. Ryan-Johnson, W.P., Wolfe, L.C., Byron, C.R., **Nagel, J.K.**, Zhang, H. (2021) "A Systems Approach of Topology Optimization for Bioinspired Material Structures Design using Additive Manufacturing," Sustainability. Submitted on 25 April 2021. Accepted on 10 May 2021. Revision submitted on 23 May 2021.
2. Ponnusamy, G. P., **Nagel, J. K.**, Rose, C.S., Pidaparti, R. M. (2019) "Investigation of C-K Theory Based Approach for Innovative Solutions in Bioinspired Design," *Designs*, Vol. 3 (3), pp. 39. doi: 10.3390/designs3030039
3. Lewis, E., Ludwig, P, **Nagel, J.** (2019) "Student Ethical Reasoning Confidence Pre/Post an Innovative Makerspace Course: A survey of Ethical Reasoning," *Nurse Education Today*, 75, pp. 75-79. doi: 10.1016/j.nedt.2019.01.011
4. Nagel, J.K.S., Schmidt, L., Born, W. (2018) "Establishing Analogy Categories for Bio-Inspired Design," *Designs*, Vol. 2(4), pp.47-64. doi:10.3390/designs2040047
5. McInerney S, Khakipoor B, Garner A, Houette T, Unsworth C, Rupp A, Weiner N, Vincent J, **Nagel J**, Niewiarowski P (2018) "E2BMO: Facilitating User Interaction with a BioMimetic Ontology via Semantic Translation and Interface Design," *Designs*, Vol. 2(4), pp.53-73. doi: 10.3390/designs2040053
6. Weidner, B., **Nagel, J.K.S.**, Weber, H.-J. (2018) "Facilitation Method for the Translation of Biological Systems to Technical Design Solutions," *International Journal of Design Creativity and Innovation*, pp. 1-24. doi:10.1080/21650349.2018.1428689
7. Ludwig, P., Lewis, E., **Nagel, J.K.S.**, (2017) "Student learning outcomes from an interdisciplinary medical innovations course," *International Journal of STEM Education*, Vol. 4, pp.33. doi: 10.1186/s40594-017-0095-y
8. Caple, M., Maslen, E., **Nagel, J.**, Wild, J. (2017) "Control of an AMB to Zero Static Force," *Mechanical Engineering Journal of the Japan Society of Mechanical Engineers*, Special Issue on Magnetic Bearing Technology, 4(5), pp. 17-00012. doi: 10.1299/mej.17-00012
9. **Nagel, J.K.S.**, Pittman, P., Pidaparti, R., Rose, C., Beverly, C.L. (2016) "Teaching Bio-inspired Design Using C-K Theory," *Bioinspired, Biomimetic and Nanobiomaterials themed issue on The Concept of Biomimetics: Teaching and Practice for Effective Knowledge Transfer*, Vol. 6(2), pp.77-86. doi: 10.1680/jbibn.16.00013
10. **Nagel, J.K.S.** (2016) "Systematic Bio-inspired Design: How Far Along Are We?" *International Council of Systems Engineering (INCOSE) INSIGHT*, vol. 19(1), pp. 32-35. doi: 10.1002/inst.12070.
11. **Nagel, J.K.S.**, Watkins, S.E. (2016) "Design of a Bio-inspired Optical Current Transducer" *IEEE-HKN The Bridge*, vol. 112(1), pp. 34-42.
12. Jones, K.H., Studor, G.M., **Nagel, J.K.S.** (2016) "Application of Natural Systems To Engineering at NASA" *IEEE-HKN The Bridge*, vol. 112(1), pp. 8-19.
13. Nagel, R.L, **Nagel, J.K.S.**, Gipson, K.G., Moran, T. (2014) "Impacting the Community through a Sophomore Design Experience." *International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship*, Special Issue: University Engineering Programs That Impact Communities: Critical Analyses and Reflection, Vol.9(3), pp.439-459.

14. Pierrakos, O., Nagel, R., Pappas, E., **Nagel, J.K.S.**, Moran, T., Barrella, E., Panizo, M. (2013) "A Mixed-Methods Study of Cognitive and Affective Learning During a Sophomore Design Problem-based Service Learning Experience." *International Journal for Service Learning in Engineering*, Special Issue: Opportunities and Barriers to Integrating Service Learning into Engineering Education, Vol.8(3), pp. 1–28.
15. **Nagel, J.K.S.** (2013) "Guard Cell & Tropomyosin Inspired Chemical Sensor." *Micromachines*, Special issue: Bioinspired Microsensors and Micromachines, vol. 4, pp. 378-401. doi:10.3390/mi4040378
16. **Nagel, J.K.S.** (2012) "The Engineering to Biology Thesaurus," *Zygote Quarterly*, vol. 1(2), pp. 102-113.
17. **Nagel, J.K.S.**, Stone, R.B. (2012) "A Computational Approach to Biologically-inspired Design," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, special issue *DCC 2010*, vol. 26(2), pp. 161-176.
18. **Nagel, J.K.S.**, Nagel, R.L., Stone, R.B. (2011) "Abstracting Biology in Engineering Design." *International Journal of Design Engineering*, special issue *Nature in Design*, vol. 4(1) pp. 23-40.
19. **Nagel, J.K.S.**, Nagel, R.L., Stone, R.B., McAdams, D.A. (2010) "Function-Based, Biologically-Inspired Concept Generation." *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, special issue *Biologically Inspired Design*, vol. 24(4), pp. 521-535.
20. **Nagel, J.K.S.**, Liou, F.W. (2010) "Developing a Modular Rapid Manufacturing System." *Journal of Manufacturing Science and Engineering*, vol. 132(6), on-line.
21. **Stroble, J.K.**, Stone, R.B., Watkins, S.E. (2009) "Biology Inspired Sensor Design." *IEEE Potentials*, vol. 28(6) pp. 19-24.
22. **Stroble, J.K.**, Stone, R.B., Watkins, S.E. (2009) "An Overview of Biomimetic Sensor Technology." *Sensor Review*, vol. 28(2) pp. 112-119.

Peer Reviewed Conference Articles

1. Paterson, K., Henriques, J., Castaneda, D., Miller, C., Nagel, R., Joshi, S., Forsyth, J., Gipson, K., and **Nagel, J.** (2021) "An ecosystem to support sense-making, identity formation, and belonging for first-year engineering students." First-Year Engineering Experience Conference. Submitted on May 26, 2021. In review, but abstract accepted.
2. Castaneda, D., Forsyth, J., Joshi, S., Miller, C., Gipson, K., **Nagel, J.**, Nagel, R., and Paterson, K. (2020) "24for24: A Virtual Summer Bridge Program in Multiple 24-Minute Sessions for the Collegiate Class of 2024," Proceedings of the 6th International Conference on E-Learning (ECONF20), Virtual.
3. **Nagel, J.K.S.**, Pittman, P., Knaster, W., Tafoya, E., Pidaparti, R., Rose, C. (2019) "Preliminary findings from a comparative study of two bio-inspired design methods in a second-year engineering curriculum." Proceedings of the 2019 ASEE Annual Conference and Exposition, Tampa, FL.
4. Zhang, H., **Nagel, J.K.**, Al-Qas, A., Gibbons, E., Lee, J.J.-Y. (2018) "Additive Manufacturing with Bioinspired Sustainable Product Design: A Conceptual Model." Proceedings of the 46th SME North American Manufacturing Research Conference, NAMRC 46, Texas, USA.
5. Pidaparti, R., **Nagel, J.K.S.** (2018) "C-K Theory Based Bio-inspired Design Projects in a Sophomore Design Course," Proceedings of 2018 ASEE Southeastern Section Conference, Daytona Beach, Florida.
6. **Nagel, J.K.S.**, Ludwig, P., Lewis, E. (2017) "Community Health Innovation through an Interprofessional Course," Proceedings of 2017 ASEE Annual Conference and Exposition, Columbus, OH.
7. McCullar, K., Underhill, S.A., Rhodes, P., **Nagel, J.K.** (2016) "Application of Bio-Inspired Design to Minimize Material Diversity," Proceedings of ASME IDETC/CIE 2016, DFMLC-59684, Charlotte, NC.

8. **Nagel, J.K.S.**, Pidaparti, R. (2016) "Significance, Prevalence and Implications for Bio-inspired Design Courses in the Undergraduate Engineering Curriculum," Proceedings of ASME IDETC/CIE 2016, DEC-59661, Charlotte, NC. doi: 10.1115/DETC2016-59661
9. **Nagel, J.K.S.**, Watkins, S.E. (2016) "Work in Progress - Pre-college Engineering Activities with Electronic Circuits," Proceedings of 2016 ASEE Annual Conference and Exposition, New Orleans, LA.
10. **Nagel, J.K.S.**, Watkins, S.E. (2016) "P12 Resource Exchange - Electronics of Everyday Things," Proceedings of 2016 ASEE Annual Conference and Exposition, New Orleans, LA.
11. Hein, G.L., Faas, D., Lucietto, A.M., **Nagel, J.K.S.**, Peters, D., Reck, R., Verstraete, M.C., O'Bannon, D.J. (2016) "The Changing Role of Professional Societies for Academics," Proceedings of 2016 ASEE Annual Conference and Exposition, New Orleans, LA.
12. Caple, M., Maslen, E., **Nagel, J.**, Wild, J. (2016) "Control of an AMB to Zero Static Force," Proceedings of the 15th International Symposium on Magnetic Bearings (ISMB15), Kitakyushu, Japan.
13. Nagel, R., **Nagel, J.**, Esparragoza, I., Schmidt, L., Rodriguez, J., (2016) "Summit on Global Sustainability in Engineering: Rationale and Planning Phase," Proceedings of the 14th Latin American and Caribbean, Consortium of Engineering Institutions (LACCEI), San Jose, Costa Rica.
14. Gipson, K., **Nagel, J.**, Henriques, J., Barrella, E., Mcleod, H., Holland, K., Padgett, S., Wild, J. (2015) "Development and Implementation of a First-year Engineering Experience," Proceedings of the First Year Engineering Experience (FYEE) Conference, Roanoke, VA.
15. **Nagel, J.K.S.**, Schmidt, L., Born, W. (2015) "Fostering Diverse Analogical Transfer in Bio-inspired Design," Proceedings of ASME IDETC/CIE 2015, DEC-47922, Boston, MA. **Nominated for best paper award*
16. **Nagel, J.K.S.**, Holland, S.K. (2015) "Design Integration into Circuits and Mechatronics Courses," Proceedings of ASME IDETC/CIE 2015, DEC-47455, Boston, MA.
17. **Nagel, J.K.S.**, Holland, S.K., Groener, B. (2015) "Embedding Engineering Design in a Circuits and Instrumentation Course," Proceedings of ASEE Conference 2015, Seattle, WA.
18. **Nagel, J.K.S.** (2015) "Development of an Innovative Multidisciplinary Course in Systems Analysis," Proceedings of ASEE Conference 2015, Seattle, WA.
19. Ciston, S., Luchini-Colbry, K., Weyant, C.M., Nagel, R.L., **Nagel, J.K.S.**, Genau, A.L., Wagstrom, K.M., Briedis, D. (2015) "Two Body Solutions: Strategies for the Dual-Career Job Search," Proceedings of ASEE Conference 2015, Seattle, WA.
20. Kennedy, B., **Nagel, J.K.S.**, Bukeima, A. (2015) "Integrating Biology, Design and Engineering for Sustainable Innovation," Proceedings of IEEE Integrated STEM Education Conference, Princeton, NJ.
21. **Nagel, J.K.S.** (2013) "Design of a Biologically-Inspired Chemical Sensor," Proceedings of ASME IDETC/CIE 2013, MESA-12378, Portland, OR.
22. **Nagel, J.K.S.**, Nagel, R., and Eggermont, M. (2013) "Teaching Biomimicry with an Engineering-to-Biology Thesaurus," Proceedings of ASME IDETC/CIE 2013, DEC-12068, Portland, OR. **Nominated for best paper award.*
23. Harper, S., Nagel, R., **Nagel, J.**, and Barrella, E. (2013) "A Study on the Factors Influencing Student Capstone Project Selection," Proceedings of ASME IDETC/CIE 2013, DEC-12633, Portland, OR.
24. Nagel, R., Pierrakos, O., and **Nagel, J.K.S.** (2013) "A Versatile Guide and Rubric to Scaffold and Assess Engineering Design Projects," Proceedings of the 120th Annual ASEE Conference and Expo, Atlanta, GA. **Nominated for best paper award.*
25. Pierrakos, O., Nagel, R., **Nagel, J.K.S.**, Barrella, E., Henriques, J., and Imholte, D. (2013) "An Innovative Two-Year Engineering Design Capstone Experience," Proceedings of the 120th Annual ASEE Conference and Expo, Atlanta, GA.
26. **Nagel, J.K.S.**, Nagel, R.L., Pappas, E., Pierrakos, O. (2012) "Integration of a Client-based Design Project into the Sophomore Year." ASME IDETC/CIE 2012, DEC-70612, Chicago, IL, USA.

27. **Nagel, J.K.S.**, Liou, F.W. (2012) "Hybrid Manufacturing System Modeling and Development." ASME IDETC/CIE 2012, DAC-70247, Chicago, IL, USA.
28. **Nagel, J.K.S.**, Pierrakos, O., Zilberberg, A. McVay, S. (2012) "Understanding Industry Experiences: From Problem Solving to Engineering Students' Learning Gains." Frontiers in Education Conference, Seattle, WA, USA.
29. Nagel, R.L., Pierrakos, O., **Nagel, J.K.S.**, Pappas, E. (2012) "On a Client-Centered, Sophomore Design Course Sequence." ASEE 2012 Conference, AC 2012-4553, San Antonio, TX, USA.
30. Pierrakos, O., Pappas, E., Nagel, R.L., **Nagel, J.K.S.** (2012) "A New Vision for Undergraduate Engineering Design Education: An Innovative Design Course Sequence at James Madison University." ASEE 2012 Conference, AC 2012-5247, San Antonio, TX, USA.
31. **Nagel, J.K.S.**, Stone, R.B. (2011) "A Systematic Approach to Biologically-inspired Engineering Design." ASME IDETC/CIE 2011, DTM-47398, Washington, D.C., USA.
32. **Nagel, J.K.S.**, Stone, R.B., McAdams, D.A. (2010) "Exploring the Use of Category and Scale to Scope a Biological Functional Model." ASME IDETC/CIE 2010, DTM-28873, Montreal, Quebec, Canada.
33. **Nagel, J.K.S.**, Stone, R.B., McAdams, D.A. (2010) "An Engineering-to-Biology Thesaurus for Engineering Design." ASME IDETC/CIE 2010 DTM-28233, Montreal, Quebec, Canada.
34. **Nagel, J.K.S.**, Stone, R.B. (2010) "A Computational Concept Generation Technique for Biologically-Inspired, Engineering Design." Design Computing and Cognition, Stuttgart, Germany.
35. **Stroble, J.K.**, Stone, R.B., McAdams, D.A. (2009) "Conceptualization of Biomimetic Sensors Through Functional Representation of Natural Sensing Solutions." International Conference on Engineering Design, vol. 2, pp. 53-63, Stanford, CA, USA.
36. **Stroble, J.K.**, Stone, R.B., Watkins, S.E. (2009) "Assessing How Digital Design Tools Affect Learning of Engineering Design Concepts." ASME IDETC/CIE 2009, DEC-86708, San Diego, CA, USA.
37. **Stroble, J.K.**, Liou, F.W. (2009) "Developing a Modular Rapid Manufacturing System." ASME IDETC/CIE 2009, DFMLC-86707, San Diego, CA, USA.
38. **Stroble, J.K.**, Stone, R.B., McAdams, D.A., Watkins, S.E. (2009) "An Engineering-to-Biology Thesaurus to Promote Collaboration, Creativity and Discovery." Proceedings of the CIRP Design Conference 2009, pp. 335-368, Cranfield, Bedfordshire, England.
39. **Stroble, J.K.**, Stone, R.B., McAdams, D.A., Goeke, M.S., Watkins, S.E. (2009) "Automated Retrieval of Biological Solutions to Engineering Problems." Proceedings of the CIRP Design Conference 2009, pp. 78-85, Cranfield, Bedfordshire, England.
40. **Stroble, J.K.**, McAdams, D.A., Stone, R.B., Shu, L.H., Watkins, S.E. (2008) "Modeling the Cellular Level of Natural Sensing Solutions with the Functional Basis for the Design of Biomimetic Sensor Technology." IEEE Region 5 Technical Conference, Kansas City, MO, USA.
41. **Stroble, J.K.**, Nagel, R.L., Poppa, K.R., Bohm, M.R., Stone, R.B. (2008) "A Retrospective on Twenty Years on Design Theory and Methodology Conference." ASME IDETC/CIE 2008, DTM-49373, Brooklyn, NY, USA.
42. Fan, Z., **Stroble, J.K.**, Sparks, T.E., Liou, F.W. (2007) "Increasing Computational Efficiency of Simulation of Laser Deposition by A Joint Numerical and Analytical Approach." International Conference on Advanced Manufacture (ICAM), Tainan, Taiwan, ROC.
43. Fan, Z., **Stroble, J.K.**, Ruan, J., Sparks, T.E., Liou, F.W. (2007) "Numerical and Analytical Modeling of Laser Deposition with Preheating." ASME Manufacturing, Science & Engineering Conference, Atlanta, GA, USA.
44. **Stroble, J.K.**, Landers, R.G., Liou, F.W. (2006) "Automation of A Hybrid Manufacturing System Through Tight Integration of Software and Sensor Feedback." Solid Freeform Fabrication Symposium, pp. 586-597, Austin, TX, USA.
45. Yang, Y., Obahor, O.O., Bao, Y., Sparks, T.E., Ruan, J., **Stroble, J.K.**, Landers, R.G., Newkirk, J., Liou, F.W. (2006). "Comparison of Thermal Properties of Laser Deposition and Traditional Welding

Process via Thermal Diffusivity Measurement." Solid Freeform Fabrication Symposium, pp. 446-452, Austin, TX, USA.

Abstract Reviewed Conference Articles

1. **Nagel, J.K.S.**, Tafoya, E, Whal, T., Capelle, J, Besnier, J., Ponnusamy, P.G., Pidaparti, R.M., Rose, C.S., Beverly, C.L. (2019) "Evidence-based Resources that Scaffold Students in Performing Bio-inspired Design," Proceedings of 2019 ASEE Annual Conference and Exposition, Tampa, FL.
2. **Nagel, J.K.S.**, Pittman, P., Pidaparti, R., Rose, C., Beverly, C.L. (2017) "Teaching Bio-inspired Design Using C-K Theory," Proceedings of 2017 ASEE Annual Conference and Exposition, Columbus, OH.
3. Rodriguez, J., Nagel, R.L., **Nagel, J.K.**, Esparragoza, I., and Schmidt, L. (2016) "Development of a Framework to Plan and Develop Learning Activities," The World Engineering Education Forum (WEEF), 6-10 Nov. 2016, Seoul, Korea.
4. **Nagel, J.K.S.**, Pidaparti, R., Rose, C., Beverly, C.L. (2016) "Enhancing the Pedagogy of Bio-inspired Design in an Engineering Curriculum," Proceedings of 2016 ASEE Annual Conference and Exposition, New Orleans, LA.
5. Caple, M., Maslen, E., **Nagel, J.**, Wild, J. (2016) "Control of an AMB to Zero Static Force," Proceedings of ISMB15, Kitakyushu, Japan. **Invited for publication in a special issue of Japan Society of Mechanical Engineers Journal*
6. Eggermont, M., McNamara, C., and **Nagel, J.K.S.** (2013) "Can Biomimicry Enhance Engineering Education?" The Biomimicry 3.8 Institute 7th Annual Biomimicry Education Summit and 1st Global Conference, Boston, MA.
7. **Nagel, J.K.S.** and Liou, F.W. (2012). "Process Modelling and Computation of a Hybrid Metal Deposition System." 2012 International Forum on Systems and Mechatronics, August 6-9, 2012, Virginia Beach, VA.
8. Filip, D., Eggermont, M., **Nagel, J.**, Yadid-Pecht, O., Mintchev, M.P. (2011) "Electronic Stool (e-Stool): A novel self-stabilizing video capsule endoscope for reliable non-invasive colonic imaging." ASME IMECE 2011, IMECE2011-62714, Denver, CO, USA.
9. **Nagel, J.K.S.**, Stone, R.B. (2011) "Teaching Biomimicry in the Context of Engineering Design." Proceedings of Biomimicry in Higher Education Webinar Conference, The Biomimicry 3.8 Institute.
10. **Stroble, J.K.**, Bao, Y., Yang, Y., Tang, L., Landers, R.G., Liou, F.W. (2007) "On-line Control of Hybrid Process for Rapid Tooling and Manufacturing," Proceedings of the 1st Annual ISC Research Symposium (ISCRS), Rolla, MO, USA.
11. Ruan, J., Sparks, T.E., Fan, Z., **Stroble, J.K.**, Panackal, A., Liou, F.W. (2006) "A Review of Layer Based Manufacturing Processes for Metals." Solid Freeform Fabrication Symposium, pp. 233-245, Austin, TX, USA.

Abstract Reviewed Conference Posters

1. **Nagel, J.K.S.**, Tafoya, E, Whal, T., Capelle, J, Besnier, J., Pidaparti, R.M., Rose, C.S., Beverly, C.L. (2019) "Evidence-based Resources that Scaffold Students in Performing Bio-inspired Design," Presented at ASEE Annual Conference and Exposition, Tampa, FL.
2. **Nagel, J.K.S.**, Pidaparti, R., Rose, C. (2017) "Teaching Bio-inspired Design in an Engineering Curriculum," Presented at the Clive L. Dym Mudd Design Workshop, Claremont, CA.
3. **Nagel, J.K.S.**, Pittman, P., Pidaparti, R., Rose, C., Beverly, C.L. (2017) "Teaching Bio-inspired Design Using C-K Theory," Presented at ASEE Annual Conference and Exposition, Columbus, OH.
4. **Nagel, J.K.S.**, Pidaparti, R., Rose, C., Beverly, C.L. (2016) "Enhancing the Pedagogy of Bio-inspired Design in an Engineering Curriculum," Presented at ASEE Annual Conference and Exposition, New Orleans, LA.
5. **Nagel, J.K.S.**, Watkins, S.W. (2016) "Pre-college Engineering Activities with Electronic Circuits," Presented at ASEE Annual Conference and Exposition, New Orleans, LA.

6. **Nagel, J.K.S.**, Pittman, P., Pidaparti, R., Rose, C., Beverly, C.L. (2016) “Enhancing the Pedagogy of Bio-inspired Design in an Engineering Curriculum,” Presented at Envisioning the Future of Undergraduate STEM Education: Research & Practice Symposium (EnFUSE), Washington D.C.
7. Ludwig, P., Lewis, E., **Nagel, J.K.S.**, (2015) “Using MakerSpace technology to promote innovation and creativity in an interprofessional education (IPE) course.” Presented at AAC&U Crossing Boundaries: Transforming STEM Education Conference, Seattle, WA.
8. **Nagel, J.K.S.** (2013) “Integrating Biomimicry in Engineering Design Education” Presented at Biomimicry 3.8 Institute 7th Annual Biomimicry Education Summit and 1st Global Conference, Boston, MA.

Abstract Reviewed Conference Presentations

1. **Nagel, J.K.S.**, “Using Curiosity for Innovation.” Presentation, Society of Women Engineers Annual Conference, WE20, virtual; November 6, 2020.
2. **Nagel, J.K.S.**, “Nature Inspired Innovation.” Presentation, Society of Women Engineers WE Local Baltimore Conference, Baltimore, MD, USA; February 8, 2019.
3. **Nagel, J.K.S.**, “Creating Meaningful Learning Experiences.” Presentation, Society of Women Engineers WE Local Baltimore Conference, Baltimore, MD, USA; February 9, 2019.
4. Pidaparti, R., **Nagel, J.K.S.**, “Bio-inspired Design Innovation through C-K Theory in Engineering Education.” Presentation, Institute of Biological Engineering Annual Meeting, Norfolk, VA, USA; April 7, 2018.
5. **Nagel, J.K.S.**, “Systematic Design of Biologically Inspired Engineering Solutions.” Presentation, Summit 2017: Nature-Inspired Exploration for Aerospace (NIEA), Cleveland, OH, USA; October 4, 2017.
6. Pidaparti, R., **Nagel, J.K.S.**, “Using Biomimicry Fundamentals to Teach Systems/Design Thinking and STEM Concepts.” Presentation, Interdisciplinary STEM Teaching & Learning Conference, Savannah, GA USA; March 3, 2017.
7. Ludwig, P., Lewis, E., **Nagel, J.K.S.**, “Interprofessional Innovations in a MakerSpace.” Presented at the 2016 Council for Undergraduate Research (CUR) Biennial Conference, University of South Florida, Tampa, FL; 2017.
8. Pidaparti, R., **Nagel, J.K.S.**, “Interdisciplinary Biomimicry Projects in Sophomore Design for Innovation.” Presentation, Institute of Biological Engineering Annual Meeting, Greenville, SC, USA; April 8, 2016.
9. **Nagel, J.K.S.**, D’Antonio, G., “Fostering a Thriving SWE Collegiate Section.” Presentation, Society of Women Engineers Region E Conference, Newport News, VA, USA; February 20, 2016.
10. **Nagel, J.K.S.**, “Creating Meaningful Learning Experiences.” Presentation, Society of Women Engineers Annual Conference, WE15, Nashville, TN, USA; October 22, 2015.
11. **Nagel, J.K.S.**, Fenner, R., “Strategies for Obtaining Your First Academic Position.” Presentation, Society of Women Engineers Annual Conference, WE15, Nashville, TN, USA; October 22, 2015.
12. **Nagel, J.K.S.**, D’Antonio, G., Rowe, S., Jones, B., Becerra, D., “Promoting Diversity in Engineering Through Community Engagement” Presentation, JMU Diversity Conference, Harrisonburg, VA, USA; March 16, 2015.
13. **Nagel, J.K.S.**, Perez-Castillejos, R., Fenner, R., “Strategies for Obtaining Your First Academic Position.” Presentation, Society of Women Engineers Annual Conference, WE14, Los Angeles, CA, USA; October 25, 2014.
14. **Nagel, J.K.S.**, “Bio-inspired Sensor Design.” Presentation, International Conference for Women Engineers and Scientists, ICWES16, Los Angeles, CA, USA; October 23, 2014.
15. **Nagel, J.K.S.**, “Biologically Inspired Engineering.” Presentation, Society of Women Engineers Annual Conference, WE13, Baltimore, MD, USA; October 24, 2013.

16. Perez-Castillejos, R., Nagel, J.K.S., “Strategies for Obtaining Your First Academic Position.” Presentation, Society of Women Engineers Annual Conference, WE13, Baltimore, MD, USA; October 25, 2013.
17. Nagel, J.K.S., Nagel, R.L., “Exposing Engineering Students to Diversity Through the Design of a Human Powered Vehicle” with Robert Nagel. Presentation, JMU Diversity Conference, Harrisonburg, VA, USA; March 18, 2013.
18. Nagel, J.K.S., “Biomimicry: An Engineering Design Tool.” Presentation, Society of Women Engineers Annual Conference, WE11, Chicago, IL, USA; October 15, 2011.

Non-Reviewed Published Articles

1. Nagel, J.K.S. (2019) “Women Wired for Innovation.” Society of Women Engineers Members at Large FY19, Newsletter 4. URL: <https://spark.adobe.com/page/xCduaVnf2fMaq/>
2. Nagel, J.K.S. (2017) “WE17 Recharged My Batteries.” Society of Women Engineers Members at Large FY18, Newsletter 2. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy18-2_final.pdf
3. Nagel, J.K.S. (2017) “My SWE Network: A network for my career, and network for life.” Society of Women Engineers Members at Large FY18, Newsletter 1. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy18-1-final_updated.pdf
4. Society of Women Engineers (2016) “Why Advocate: Partnering with Educators to Inspire the Future Generation of Engineers.” Interviewed for and featured in the article, Society of Women Engineers All Together Newsletter, March 2016. URL: <http://alltogether.swe.org/2016/03/why-advocate-partnering-with-educators-to-inspire-the-future-generation-of-engineers/>
5. Nagel, J.K.S. (2016) “SWE Is My Constant.” Society of Women Engineers Members at Large FY16 Newsletter 4. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy16-4_final.pdf
6. Nagel, J.K.S. (2016) “Advocating with Educators.” Society of Women Engineers Members at Large FY16 Newsletter 4. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy16-4_final.pdf
7. Nagel, J.K.S. (2014) “Tips for Succeeding as a Leader.” Society of Women Engineers Members at Large FY14, Newsletter 4. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy14_4.pdf
8. Nagel, J.K.S. (2014) “Region E Women Defining Their Own Success.” Society of Women Engineers Members at Large FY14, Newsletter 4. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy14_4.pdf
9. Bains, H. (2013) “Tips for New Faces of Engineering Nominations.” Interviewed for and featured in the article, Society of Women Engineers Members at Large FY14, Newsletter 1. URL: http://mal.swe.org/uploads/2/0/7/1/20710646/mal_newsletter_fy14-1_final_07302013.pdf
10. Nagel, J.K.S. (2013) “eWeek Extravaganza!” Society of Women Engineers Members at Large FY13, Newsletter 3.
11. Nagel, J.K.S. (2011) “WE11 Recharged My Batteries.” Society of Women Engineers Members at Large FY12, Newsletter 2.

Student Lead Publications and Presentations

Publications

1. Cassidy Anderson, William J Hinkle, Lachlan Hudson, Ethan Keck, Trevor Kraeutler, Zach Wenzler, Adam Zahorchak, Jacquelyn Nagel (2021) “Autonomous Inspection System for Railroads,” Available in the proceedings of IEEE SIEDS’21, University of Virginia.
2. Weidner, B., Nagel, J.K.S., Weber, H.-J. (2018) “Facilitation Method for the Translation of Biological Systems to Technical Design Solutions,” *International Journal of Design Creativity and Innovation*, pp. 1-24. doi:10.1080/21650349.2018.1428689.
3. McCullar, K., Underhill, S.A., Rhodes, P., Nagel, J.K. (2016) “Application of Bio-Inspired Design to Minimize Material Diversity,” Proceedings of ASME IDETC/CIE 2016, DFMLC-59684, Charlotte, NC.

4. Duda, Z., Gaffney, J., Graves, C., Moore, Q., Watkins, J., Nagel, J. (2017) "Medical Sterilization System for NASA Space Exploration Missions," Available in the proceedings of IEEE SIEDS'17, University of Virginia.
5. Collier Apgar, George Schmidt, II, Jacob Wild, Zachary Patterson, David Hieronymous, Paul Revesman, Jacquelyn Nagel (2016) "Biomechanical Energy Harvesting Using a Knee Mounted Generator," Available in the proceedings of IEEE SIEDS'16, University of Virginia.
6. Karl Braun, Evan Eaves, Christopher Giambri, Dylan Chapman, Hunter Heavner, John Woodward, Jacquelyn Nagel, Kyle Gipson (2016) "Reducing Electrical Energy Consumption of AHU Fans Through the Integration of Variable Frequency Drives," Available in the proceedings of IEEE SIEDS'16, University of Virginia.
7. Jon Picart, Joey Stoll, Katie Hess, Terence McKeever, Mary Tacy, Jacquelyn Nagel (2015) "Wheelchair for Disabled Children in Haiti," Available in the proceedings of IEEE SIEDS'15.
8. Michael Caple, Jacob Wild, Jacquelyn Nagel, Eric Maslen (2015) "Design of a Controller for a Hybrid Bearing System," Available in the proceedings of IEEE SIEDS'15.
9. Eric Leaman, Jack Cochran, Jacquelyn Nagel (2014) "Two-phase Energy System," Proceedings of the National Conference of Undergraduate Research (NCUR), vol 36. <http://www.ncurproceedings.org/ojs/index.php/NCUR2014/article/view/1035/563>
10. Brian Bojarski, Evan Brown, Jerald Blake Lumpkin, Jacquelyn Nagel, Robert Nagel, John Quackenbush, Margaret Farrell Robinson (2014) "Robotic Platform for Photography Applications," Available in the proceedings of IEEE SIEDS'14.
11. Nic Acton, Melissa Bernazani, Jonathan Hill, Michael Hinton, Aaron Vazquez, Kyle Gipson, Jacquelyn Nagel (2014) "Design of a Climate Adaptable Solar Energy System Using Biomimetic Inspiration From a Lichen Symbiosis," Available in the proceedings of IEEE SIEDS'14.
12. Eric Leaman, Jack Cochran, Jacquelyn Nagel (2014) "Design of a Two-phase Solar and Fluid-based Renewable Energy System for Residential Use," Available in the proceedings of IEEE SIEDS'14.
13. Brian Bojarski, Evan Brown, Jerald Blake Lumpkin, Jacquelyn Nagel, Robert Nagel, John Quackenbush, Margaret Farrell Robinson (2014) "Robotic Platform for Photography Applications," James Madison Undergraduate Research Journal. Manuscript submitted May 2014.
14. Morgan Hagar, Jacquelyn Nagel (2014) "Converting an AC Induction Motor to a Standalone Generator," James Madison Undergraduate Research Journal. Manuscript submitted April 2014.
15. Weidner, B., Nagel, J.K.S. (2013) "Utilizing the Guard Cell for the Biomimetic Approach to Engineering Design." James Madison Undergraduate Research Journal. Manuscript submitted January 2014.

Poster Presentations

1. Tafoya, E., Besnier, J., Capelle, J., Wahl, T., Nagel, J.K.S., Rose, C. (2019) "A Comparative Study of Bio-Inspired Design Methods in an Engineering Curriculum," Presented at the Mid-atlantic Undergraduate Research Conference, Blacksburg, VA.
2. Nagel, J.K., Anderson, M., "Exploring multi-functional biological materials for sustainable design," Poster Presentation at the 2nd Annual Nature-inspired Exploration for Aerospace Biomimicry Summit, Ohio Space Institute, Cleveland, OH, October 2017.
3. McCullar, K., Underhill, S.A., Rhodes, P., Nagel, J.K. "Exploring the Application of Biomimicry for Sustainable Design," Poster Presentation at the Virginia Academy of Science (VAS) Annual Meeting, Mary Washington University, May 2016.
4. Nagel, J.K., Graves, C., Underhill, S.A., McCullar, K., Kelly, K. "Application of Bio-inspired Design to Minimize Material Diversity," Poster presentation at the ASME Additive Manufacturing and 3D Printing (AM3D) Conference and Expo, AM3D2015-1537, Boston, MA, August 2015. ***Won best poster award.**
5. Davis, J.B., Nagel, J.K. "Lichen Inspired Solar Energy System," Poster Presentation at the Virginia Academy of Science (VAS) Annual Meeting, James Madison University, May 2015.

6. Eric Leaman, Jack Cochran, Jacquelyn Nagel, “Two-phase Energy System” Presented at the National Conference for Undergraduate Research (NCUR), University of Kentucky, April 2014.
7. Nic Acton, Melissa Bernazani, Jonathan Hill, Michael Hinton, Aaron Vazquez, Kyle Gipson, Jacquelyn Nagel, “Climate Adaptable Solar Energy System,” Poster presentation, MS/HS Counselor and STEM Teacher Workshop, James Madison University, February 2014.
8. Jon Picart, TJ McKeever, Katie Hess, Joey Stoll, Jacquelyn Nagel, Mary Tacy, “Wheelchairs for Haiti,” Poster presentation, MS/HS Counselor and STEM Teacher Workshop, James Madison University, February 2014.

Podium Presentations

1. Givan, J., Anderson, M., Nagel, J. (2019) “NASA Design Challenge: Autonomous Inspection Using a Free-flying Craft,” Presented virtually at the INCOSE International Workshop, Torrance, CA.
2. Duda, Z., Gaffney, J., Graves, C., Moore, Q., Watkins, J., Nagel, J. (2017) “Medical Sterilization System for NASA Space Exploration Missions,” Presented at IEEE SIEDS’17, University of Virginia.
3. Collier Apgar, George Schmidt, II, Jacob Wild, Zachary Patterson, David Hieronymous, Paul Revesman, Jacquelyn Nagel, “Biomechanical Energy Harvesting Using a Knee Mounted Generator,” Presented at IEEE SIEDS’16, University of Virginia, April 2016.
4. Karl Braun, Evan Eaves, Christopher Giambri, Dylan Chapman, Hunter Heavner, John Woodward, Jacquelyn Nagel, Kyle Gipson, “Reducing Electrical Energy Consumption of AHU Fans Through the Integration of Variable Frequency Drives,” Presented at IEEE SIEDS’16, University of Virginia, April 2016.
5. Nagel, J.K., Graves, C., Underhill, S.A., McCullar, K., Kelly, K. “Sustainable Manufacturing Through Bio-inspired Design,” Presentation at the Virginia Academy of Science (VAS) Annual Meeting, James Madison University, May 2015.
6. Jon Picart, Joey Stoll, Katie Hess, Terence McKeever, Mary Tacy, Jacquelyn Nagel, “Wheelchair for Disabled Children in Haiti,” Presented at IEEE SIEDS’15, University of Virginia, April 2015.
7. Michael Caple, Jacob Wild, Jacquelyn Nagel, Eric Maslen, “Design of a Controller for a Hybrid Bearing System,” Presented at IEEE SIEDS’15, University of Virginia, April 2015.
8. Brian Bojarski, Evan Brown, Jerald Blake Lumpkin, Jacquelyn Nagel, Robert Nagel, John Quackenbush, Margaret Farrell Robinson, “Robotic Platform for Photography Applications,” Presented at the ASME IDETC/CIE Designing for the Future Competition, Buffalo, NY, August 2014.
9. Brad Weidner, “Modeling and Translation of the Guard Cell,” Presentation at the Madison xChange, James Madison University, April 2014.
10. Austin Underhill, “Function and Form for Bio-inspired Design,” Presentation at the Madison xChange, James Madison University, April 2014.
11. Brian Bojarski, Evan Brown, Jerald Blake Lumpkin, Jacquelyn Nagel, Robert Nagel, John Quackenbush, Margaret Farrell Robinson, “Robotic Platform for Photography Applications,” Presented at IEEE SIEDS’14, University of Virginia, April 2014.
12. Nic Acton, Melissa Bernazani, Jonathan Hill, Michael Hinton, Aaron Vazquez, Kyle Gipson, Jacquelyn Nagel, “Design of a Climate Adaptable Solar Energy System Using Biomimetic Inspiration From a Lichen Symbiosis,” Presented at IEEE SIEDS’14, University of Virginia, April 2014.
13. Eric Leaman, Jack Cochran, Jacquelyn Nagel, “Design of a Two-phase Solar and Fluid-based Renewable Energy System for Residential Use,” Presented at IEEE SIEDS’14, University of Virginia, April 2014.
14. Eric Leaman, Jack Cochran, Jacquelyn Nagel, “Two-phase Energy System” Presented at the Central Virginia Section IEEE Meeting, James Madison University, March 2014.
15. Eric Leaman, Jack Cochran, Jacquelyn Nagel, “Two-phase Energy System” Presented at the VCU Energy and Sustainability Conference, Richmond, VA, April 2013.

16. Condro, J. B., Nagel, J.K., “Design of a Two-phase Energy System” Presented at the VMI Environment Virginia Symposium, Lynchburg, VA, April 2013.
17. Condro, J. B., Nagel, J.K., “Design of a Two-phase Energy System” Presented at the JMU Valley 25x’25 Renewable Energy Symposium, Harrisonburg, VA, October 2012.

INVITED TALKS

(Not associated with a publication)

1. “Wild Ideas for Innovation.” Invited and selected to speak at TEDxCharleston Cascades, March 2022.
2. “Leveraging Curiosity for Innovation” Invited Keynote Talk in celebration of Women’s History Month, for the Nuclear Regulatory Commission (NRC)
3. “Biomimetics and Design Theory.” Invited lecture for the 5th Tutorial of the Design Theory SIG, January 29, 2021.
4. “Outcomes of an NSF Funded BID Pedagogy Research Project.” Invited Talk for the 2nd Biocene Workshop on BID Tools, Virtual, October 10, 2020.
5. “Introduction to Design & Empathy Mapping.” Invited Lecture for TEDI-London Summer School, Virtual, June 8, 2020.
6. “Biomimetics and Design Theory.” Invited lecture for the 4rd Tutorial of the Design Theory SIG, January 30, 2020.
7. “Function based methods in design and Biomimicry.” Invited Plenary Talk for the 1st Biocene Workshop on BID Tools, NASA Glenn Research Center, September 9, 2019.
8. “Biomimetics and Design Theory.” Invited lecture for the 3rd Tutorial of the Design Theory SIG, January 31, 2019.
9. “Systematic Bio-inspired Design.” Invited talk for Integrated Bioscience Seminar Series, University of Akron, February 9, 2018.
10. “A Tutorial on Three Design Tools for Bio-inspired Design.” Invited talk for Virtual Interchange for Nature-inspired Exploration Group, NASA Glenn Research Center, February 8, 2018.
11. “Biomimetics and Design Theory.” Invited lecture for the 2nd Tutorial of the Design Theory SIG, January 31, 2018.
12. “Teaching Biomimetics with C-K Theory.” Invited plenary talk for the 11th International Workshop on Design Theory, January 30, 2018.
13. “Life Cycle Approach to Dealing with Difficult to Recycle Materials.” Invited session talk for the Virginia Recycling Associating Annual Meeting, May 12, 2016.
14. “Bio-inspired Design.” Invited X-Labs Pop-up Class, James Madison University, October 27, 2015 and February 2, 2016.
15. “Systematic Design of Biologically-Inspired Engineering Solutions.” Invited Webinar to the INCOSE Natural Systems Working Group, May 15, 2015.
16. “Inspiring Tomorrows Engineers.” James Madison University, Invited Faculty Seminar for the Brown Bag Lunch Series, November 12, 2014.
17. “Biologically-inspired Design.” Invited lecture for the Undergraduate Senior Geography Course–Environmental Conservations, Sustainability and Development, James Madison University, September 3, 2014.
18. “Biologically Inspired Engineering.” Invited Webinar for the Society of Women Engineers; March 27, 2014.
19. “Biologically-inspired Engineering Solutions.” Invited lecture for the Undergraduate Senior Geography Course–Environmental Conservations, Sustainability and Development, James Madison University, December 6, 2013.

20. “Systematic Design of Biologically-Inspired Engineering Solutions.” Invited talk for the Department of Biology Seminar Series, James Madison University, November 15, 2013.
21. “Introduction to Biomimicry.” Invited lecture for the Undergraduate Engineering Course–Engineering Design II, James Madison University, March 2012.
22. “Systematic Design of Biologically-Inspired Engineering Solutions.” Invited research talk for the Department of Mechanical Engineering, Clemson University, February 25, 2011.
23. “An Engineering-to-Biology Thesaurus for Engineering Design.” Invited lecture for the Graduate Mechanical Engineering Course–Biomimetics for Engineers, University of Calgary, February 2011.
24. “Systematic Design of Biologically-Inspired Engineering Solutions.” Invited research talk for the School of Engineering, James Madison University, January 28, 2011.
25. “Robots and Your Future.” Invited lecture for the Ruffner Academy 6th grade class, Part of the James Madison University Professor In Residence Program, November 18, 2010.
26. “Systematic Design of Biologically-Inspired Engineering Solutions.” Invited research talk for the Department of Industrial, Systems and Multidisciplinary Engineering, University of New Haven, April 19, 2010.
27. “Creating the Foundations of Biologically-Inspired, Engineering Design.” Invited research talk for the Design Research Area Seminar Series, Department of Mechanical, Industrial and Manufacturing Engineering, Oregon State University, January, 25, 2010.
28. “Biomimicry A.K.A. Biology Inspired Design.” Invited lecture for the Undergraduate Mechanical Engineering Course–Introduction to Design, Oregon State University, October 2009.
29. “Bio-inspired Design.” Invited lecture for the Graduate Interdisciplinary Engineering Course–Modern Product Design, Missouri University of Science & Technology, October 2008.

PANEL SESSIONS

1. “Demystifying Academic Institution Types and Associated Leadership Roles.” Panel Session, Society of Women Engineers Annual Conference, WE20, Virtual; November 13, 2020.
2. “Pathways to Academia as a Career.” Panel Session, IEEE HKN Experience Virtual Conference; November 4, 2020.
3. “Demystifying Academic Institution Types and Associated Leadership Roles.” Panel Session, Society of Women Engineers Annual Conference, WE19, Anaheim, CA, USA; November 7, 2019.
4. “Creating Meaningful Learning Experiences.” Panel Session, Society of Women Engineers Annual Conference, WE19, Anaheim, CA, USA; November 8, 2019.
5. “Benefits of Joining SWE as a Professional.” Panel Session, Society of Women Engineers Region E Conference, Newport News, VA, USA; February 20, 2016.
6. Nagel, J.K.S., Nagel, R.L., Ciston, S., Ciston, J. “Managing Dual Careers in Academia,” Webinar, Society of Women Engineers; August 13, 2015.
7. Ciston, S., Luchini-Colbry, K., Weyant, C.M., Nagel, R.L., Nagel, J.K.S., Genau, A.L., Wagstrom, K.M., Briedis, D. “Two Body Solutions: Strategies for the Dual-Career Job Search,” Panel Session, ASEE Conference, Seattle, WA; June 15, 2015.
8. “The Road Less Traveled: Women Engineers’ Journeys to Academia.” Panel Session, Society of Women Engineers Annual Conference, WE14, Los Angeles, CA, USA; October 24, 2014.
9. “Pathway to Graduate School and Women Engineers’ Journeys to Academia.” Panel Session, Society of Women Engineers Region E Conference, Blacksburg, VA, USA; March 29, 2014.
10. “Strategies for the Academic Job Search.” Panel Session, Society of Women Engineers Annual Conference, WE13, Baltimore, MD, USA; October 25, 2013.

11. Eggermont, M., McNamara, C., and Nagel, J.K.S., “Can Biomimicry Enhance Engineering Education?” Panel session, 7th Annual Biomimicry Education Summit and 1st Global Conference, Boston, MA, June 2013.

GRANT PROPOSALS

1. *MRI: Acquisition of a Metal 3D Printer to Enhance Undergraduate Research Training in Additive Manufacturing at James Madison University*; Submitted to the NSF MRI; Dr. Hao Zhang (PI, JMU ISAT), Dr. Jacquelyn Nagel (Co-PI, JMU Engineering); Submitted January 2019.
2. *Design Portfolios: A Method for Reducing Costs to Educate 21st Century Engineers*; Submitted to Virginia’s Academic Library Consortium; Dr. Robert Nagel (PI), Dr. Callie Miller (Co-PI), **Dr. Jacquelyn Nagel** (Co-PI), Dr. Shraddha Joshi (Co-PI); Submitted January 2019.
3. *Establishing an Industrial Assessment Center at James Madison University*; Submitted to the US Department of Energy; Dr. Hao Zhang (PI, JMU), **Dr. Jacquelyn Nagel** (Co-PI, JMU); Submitted March 14, 2017.
4. *Collaborative Research: Engaged Student Learning at Disciplinary Interfaces*; Submitted to NSF IUSE EHR; Dr. Patrice Ludwig (PI, JMU), Dr. Erica Lewis (Co-PI, JMU), **Dr. Jacquelyn K. Nagel** (Co-PI, JMU), Dr. Robby Sanders (PI, TTU), Dr. Melissa Geist (Co-PI, TTU), Dr. Holly Anthony (Co-PI, TTU); Submitted January 11, 2017.
5. *Sterilization System for Space Exploration Missions*; Submitted to National Institute of Aeronautics and NASA; **Dr. Jacquelyn K. Nagel** (PI), ; Submitted August 1, 2015. **Awarded - \$10,000 in funding.**
6. *Summit on Global Sustainability in Engineering Education: Developing Knowledge and Planning for Strategic Processing*; Submitted to NSF EEC; Dr. Robert L. Nagel (PI, JMU), **Dr. Jacquelyn K. Nagel** (Co-PI, JMU); Submitted June 30, 2015. **Awarded - \$48,267 in funding.**
7. *The Madison Connect HUB*; Madison Trust Innovation Grant Opportunity; Dr. Olga Pierrakos (PI, JMU), Dr. Kurt Paterson (Co-PI, JMU), **Dr. Jacquelyn Nagel** (Co-PI, JMU), Dr. Robert Nagel (Co-PI, JMU), Dr. Elise Barrella (Co-PI, JMU), Dr. Kyle Gipson (Co-PI, JMU), Dr. Heather McLeod (Co-PI, JMU), William Roy (Immerge Technologies); Submitted November 14, 2014. **Awarded - \$50,000 in funding.**
8. *Robotics Equipment for Student Research Collaboration*; College of Integrated Science & Engineering (CISE) Faculty Development Grant Opportunity; Dr. Jacquelyn K. Nagel (Principle Investigator); Submitted October 31, 2014. **Awarded - \$4062 in funding.**
9. *Collaborative Research: Enhancing the Pedagogy of Bio-inspired Design in an Engineering Curriculum*; Submitted to NSF IUSE EHR; **Dr. Jacquelyn K. Nagel** (PI, JMU), Dr. Christopher Rose (Co-PI, JMU), Dr. Ramana Pidaparti (PI, UGA); Submitted October 22, 2014. **Awarded - \$128,563 in funding.**
10. *Using novel technology to engage interprofessional students in solving a community health challenge*; 4 Virginia Mini Grant Opportunity; Dr. Erica Lewis (PI), Dr. Patrice Ludwig (Co-PI), **Dr. Jacquelyn K. Nagel** (Co-PI); Submitted October 3, 2014. **Awarded - \$5,000 in funding.**
11. *Manufacturing Innovation through Sustainable Design*; 4 Virginia Scale Up Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU); Dr. Marta Bechtel (Co-PI, JMU); Brook S. Kennedy (Principle Investigator, VT), Dr. Arthur Buikema (Co-PI, VT), ; Submitted October 3, 2014. **Awarded - \$15,000 in funding.**
12. *REE: Developing and Assessing Engineering Students’ Cognitive Flexibility in the Domain of Sustainable Design*; Submitted to NSF REE; Dr. Elise Barrella (PI, JMU), **Dr. Jacquelyn K. Nagel** (Co-PI, JMU), Dr. Olga Pierrakos (Co-PI, JMU), Ms. Mary Watson (PI, Citadel Military College of S.C.); Submitted September 18, 2014. **Awarded - \$298,502 in funding.**
13. *Experimental Investigation and Control of the Integrated JB/AMB*; Submitted to National Science Foundation (NSF) and Science and Technology Development Fund (STDF) as part of the U.S.-Egypt Science and Technology Program; Prof. Aly El-Shafei (Principle Investigator, Cairo University), Prof.

- Eric Maslen (Principle Investigator, JMU), **Dr. Jacquelyn K. Nagel** (Co-Investigator, JMU); Submitted May 2014. **Awarded - \$86,780 in funding.**
14. *Equipment for Automation of an Adaptable Solar Energy System*; College of Integrated Science & Engineering Faculty Development Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted April 2014. **Awarded - \$750 in funding.**
 15. *A Pilot High School Academic Fair as Part of a CISE and STEM recruitment Strategy*; Submitted to the James Madison University Innovative Diversity Effort Award (IDEA) Program; Maria Papadakis (JMU ISAT); **Dr. Jacquelyn K. Nagel** (JMU Engineering), Dr. Nathan Sprague (JMU CS), Dr. Jeff Tang (JMU CISE); Submitted March 31, 2014. **Awarded - \$2000 in funding.**
 16. *Collaborative Research: Automatic Translation of Biological Phenomena to Facilitate Bio-inspired Engineering Design*; Submitted to NSF CMMI ESD; Dr. Dan McAdams (Principle Investigator, Texas A&M), Dr. R. Lints (CO-PI, Texas A&M), Dr. Robert Stone (Principle Investigator, OSU), Dr. Chris Scaffidi (CO-PI, OSU), **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU), Dr. Christopher Rose (CO-PI, JMU); Submitted February 2014.
 17. *NIST SURF Application for Eric Leaman*; National Institute for Standards and Technology (NIST) FY 2014 Summer Undergraduate Research Fellowship (SURF) Program Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted February 12, 2014. **Awarded - \$8496 in funding.**
 18. *A Sustainable Design Framework for Developing and Assessing Engineering Students' Cognitive Flexibility*; Submitted to NSF REE; Dr. Elise Barrella (PI, JMU), **Dr. Jacquelyn K. Nagel** (Co-PI, JMU), Dr. Olga Pierrakos (Co-PI, JMU), Dr. Heather Watson (Co-PI, JMU), Ms. Mary Watson (PI, Citadel Military College of S.C.); Submitted January 2014.
 19. *Adaptable Solar Energy System*; Virginia Innovation Partnership Funding Opportunity; Dr. Jacquelyn K. Nagel (Principle Investigator), Dr. Kyle G. Gipson (Co-PI); Submitted November 15, 2013.
 20. *International Engineering & Biomimicry Research Conference* – Travel to an international conference on biomimicry; College of Integrated Science & Engineering International Grant Opportunity; Dr. Jacquelyn K. Nagel (Principle Investigator); Submitted November 8, 2013.
 21. *Sustainable Innovation: Integrating teams in Biology, Design and Engineering*; 4 Virginia Mini-Grant Opportunity; Brook S. Kennedy (Principle Investigator, VT), Dr. Arthur Buikema (Collaborator, VT), **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU); Submitted October 8, 2013. **Awarded - \$9400 in funding.**
 22. *Equipment for Development of an Introduction to Sensors Course*; College of Integrated Science & Engineering Faculty Development Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted April 19, 2013. **Awarded - \$750 in funding.**
 23. *International & Interdisciplinary Biomimicry Collaboration – Travel to an international conference on biomimicry*; College of Integrated Science & Engineering International Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted February 28, 2013. **Awarded - \$1656 in funding.**
 24. *2013 PASI Workshop Application*; Submitted to NSF PASI 2013 Organizing Committee, Wayne State University for travel stipend; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted February 2013. **Awarded - \$2000 in funding.**
 25. *NIST SURF Application for Eric Leaman*; National Institute for Standards and Technology (NIST) FY 2013 Summer Undergraduate Research Fellowship (SURF) Program Grant Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted February 13, 2013. **Awarded - \$8496 in funding.**
 26. *Collaborative Research: Journaling to Study Ideation Behavior during Capstone Design*; Submitted to NSF CCLI-TUES, PD 10-544; Dr. Linda Schmidt (Principle Investigator, UMD), Dr. Gul Okudan Kremer (CO-PI, PSU), **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU); Submitted January 2013.
 27. *Design of a Two-Phase Renewable Energy System*; Submitted to P3 Awards Funding Opportunity Number EPA-G2012-P3-Q1—Energy; **Dr. Jacquelyn K. Nagel** (Faculty Lead Investigator), Jack Cochran (Student Lead Investigator), Eric Leaman (Student Co-Investigator), J. Benjamin Condro (Student Co-Investigator); Submitted December 11, 2012.

28. *Collaborative Grant: Bio-inspired Engineering Design through Physical Phenomenon and Embodying Agent Identification and Translation*; Submitted to NSF EDI, PD 11-1464; Dr. Dan McAdams (Principle Investigator, Texas A&M), Dr. Thierry Lints (CO-PI, Texas A&M), Dr. Robert Stone (Principle Investigator, OSU), Dr. Chris Scaffidi (CO-PI, OSU), **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU), Dr. Christopher Rose (CO-PI, JMU); Submitted October 2012.
29. *Ultra High Speed Bearingless Motor Drive*; Submitted to ARPA-E; Dr. Vladimir Blasko (Principle Investigator, UTRC), Dr. Jagadeesh Tangudu (Co-Investigator, UTRC), Dr. Thomas M. Jahns (Principle Investigator, UW-Madison); Dr. Yehui Han (Co-Investigator, UW-Madison), Prof. Eric Maslen (Principle Investigator, JMU), **Dr. Jacquelyn K. Nagel** (Co-Investigator, JMU); Submitted July 2012.
30. *Two-Phase Energy System*; Submitted to Institute for Energy and Environmental Research Valley 25 x '25 Awards Funding Opportunity; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted February 27, 2012. **Awarded - \$10,515 in funding.**
31. *Collaborative Grant: Bio-inspired Engineering Design through Physical Phenomenon and Embodying Agent Identification and Translation*; Submitted to NSF EDI, PD 11-1464; Dr. Dan McAdams (Principle Investigator, Texas A&M), Dr. Robert Stone (Principle Investigator, OSU) **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU); Submitted February 2012.
32. *Experimental Investigation and Control of the Integrated JB/AMB*; Submitted to National Science Foundation (NSF) and Science and Technology Development Fund (STDF) as part of the U.S.-Egypt Science and Technology Program; Prof. Aly El-Shafei (Principle Investigator, Cairo University), Prof. Eric Maslen ((Principle Investigator, JMU), **Dr. Jacquelyn K. Nagel** (Co-Investigator, JMU); Submitted December 2011. Awarded, but funding was retracted due to political reasons at the federal government level.
33. *Risk Assessment of Biomimetic Products Case Study*; Submitted to Forensic and Risk Analysis Case Studies RFP, Dr. Katie Grantham; **Dr. Jacquelyn K. Nagel** (Principle Investigator); Submitted October 2011. **Awarded - \$2000 in funding.**
34. *OpenCoMLib: An Open Library for Enabling Model-Based Systems Engineering*; Submitted to DARPA BAA C2M2L, DARPA-BAA-11-47-1 ; Dr. Irem Tumer (Principle Investigator, OSU), Dr. Robert Stone (Principle Investigator, OSU), Dr. Chris Hoyle (Principle Investigator, OSU), **Dr. Jacquelyn K. Nagel** (Principle Investigator, JMU); Submitted August 2011.
35. *Near-field chemical measurements by natural and artificial sensing systems*; Submitted to the NRC Research Associateship Program Research Opportunity #AE.00.00.BR144 Sponsored by NIST/NIH; **Dr. Jacquelyn K. Nagel** (Lead Investigator), Dr. Stephen Semancik (Co-advisor-NIST), Dr. Mark Stopfer (Co-advisor-NIH); Submitted August 2, 2010.
36. *Design of a Two-Phase Solar Energy System*; Submitted to P3 Awards Funding Opportunity Number EPA-G2010-P3-Q1—Energy; Dr. Robert B. Stone (Faculty Lead Investigator), **Jacquelyn K. Nagel** (Student Lead Investigator), Dr. Matt R. Bohm (Co-Investigator); Submitted January 4th, 2010.

SOCIETY MEMBERSHIPS

Tau Beta Pi - National Honor Society for All Engineering Disciplines
 Eta Kappa Nu - National Honor Society for Electrical and Computer Engineering
 Phi Kappa Phi - National Honor Society for All College Level Academic Disciplines
 Phi Theta Kappa - International Honor Society for the Two-Year College
 Order of the Engineer
 Society of Women Engineers (SWE)
 Institute of Electronic and Electrical Engineers (IEEE)
 American Society for Engineering Education (ASEE)
 Former member of ASME International
 Former member of the Society of Manufacturing Engineers (SME)