ESIC Graduate Student Welcome --Fall 2022

Noel Schulz

EECS Graduate Studies Committee Chair

Co-Director, PNNL/WSU Advanced Grid Institute (AGI)

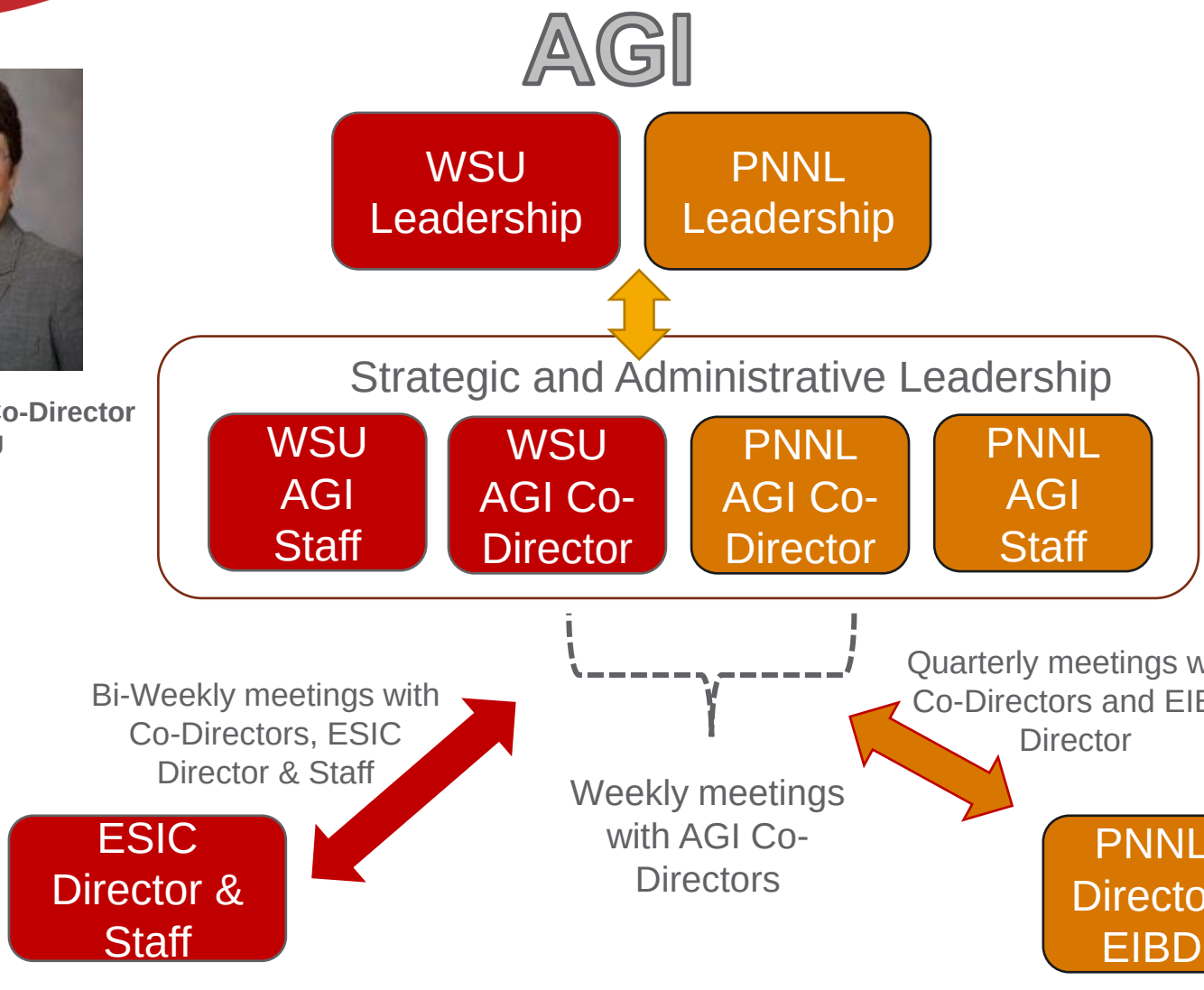
US Administrative Lead, UI-ASSIST

Pacific Northwest National Laboratory (PNNL)/WSU Advanced Grid Institute (AGI)

AGI Leadership

Jeff Dagle, Co-Director
PNNL

Noel Schulz, Co-Director
WSU



PNNL/WSU Advanced Grid Institute (AGI)

Mission and Vision – 10 years

Updated Mission and Vision 2021:

MISSION: To promote the research and evolution of advanced grid modeling to support planning and operations of complex power system of the future and its workforce.

VISION: To be recognized as the leading engineering source that will enhance the North American power system to influence the rest of the world.

https://natlab.wsu.edu/grid/documents/2021/06/agi-strategic-plan-2021.pdf/

AGI 2021 Strategic Plan

AGI ESIC Webinars – Spring 2022 – PNNL Insights

https://esic.wsu.edu/seminar-series-spring-2022/

THE WSU-PNNL ADVANCED GRID INSTITUTE

Update on the "Infrastructure Investment and Jobs Act" ~ Goals and Opportunities ~

~ by ~

CARL IMHOFF & ANGELA BECKER-DIPPMANN
Pacific Northwest National Lab (PNNL)

Tuesday, February 8 • 11:00 AM – Noon (PT) • TEAMS ONLY
[Click here to join meeting]

ABSTRACT

This presentation will address the key elements of the now titled "Infrastructure Investment and Jobs Act:" describing key sections, goals and potential opportunities for the Pacific Northwest.

BIOS

Carl Imhoff manages the Electric Infrastructure research program at the Pacific Northwest National Laboratory. PNNL conducts fundamental and applied research as well as product development with the U.S. Department of Energy, other federal agencies and state governments. Responsible for PNNL's research and development programs on innovations in the areas of advanced power transmission and distribution reliability concepts, demand response, integration concepts for distributed energy resources, all scales of clean energy supply, physical and cyber security of electric systems, policy and strategy for smart grid concepts, and cross-cutting grid analytic tools in visualization and high-performance computing. Mr. Imhoff is the Laboratory Chair for the DOE Grid Modernization Laboratory Consortium. This Consortium integrates national laboratories in support of the DOE Grid Modernization Initiative.

Angela Becker-Dippmann serves as Director of the Energy & Environment Directorate's Program Development Office. She rejoined PNNL in April 2019. In this cross-cutting role, she evaluates emerging national, regional, and state energy and environmental priorities, policies and programs to ensure EED's mission strategy and S&T are focused on the most impactful outcomes. She is based in PNNL's Seattle office. Previously, she served as Staff Director at the U.S. Senate Committee on Energy and Natural Resources (SENR), with jurisdiction over the Department of Energy's Office of Science, applied R&D programs, Bonneville Power Administration, the Federal Energy Regulatory Commission and U.S. Department of Interior.

THE WSU-PNNL ADVANCED GRID INSTITUTE

Progress Towards Resilience through Data-Driven Intelligently-Designed Control

~ by ~

THOMAS EDGAR & VERONICA ADETOLA
Pacific Northwest National Lab (PNNL)

Tuesday, March 29 • 11:00 AM – Noon (PT) • TEAMS ONLY
[Click here to join meeting]

ABSTRACT

Control systems are increasing in capabilities and connectivity to continue to meet the performance goals required by our critical infrastructure. Due to these increases there is an resultant increased risk of hazards, like cyber-attacks, failing communication infrastructure, emergent failure conditions due to complex interactions. To mitigate these risks, controls must be designed for resilience to these adverse conditions and operate around them. In support of this goal, PNNL has started a research program called Resilience through Data-drive, Intelligently Designed Control (RD2C) to develop resilient controls through empirical exploration and phenomenological understanding of system behavior under adverse conditions and using control theory, data-driven algorithmic, and co-design approaches. An overview of this new research program will be presented with in-depth discussions of a few of the current projects and some early results.

BIOS

Thomas Edgar is a cyber security research scientist at PNNL. During his 15+ years at PNNL, Edgar has worked in the fields of secure communications protocols, cryptographic trust management, insider threat, security standards, and scientific approach to security. Edgar is the principal investigator for a cyber-physical testbed to enable controlled experimentation in high-fidelity environments. He is also the thrust lead for the Resilience Through Data-driven, Intelligently Designed Control (RD2C) initiative, focused on increasing our understanding of cyber-physical systems through the creation and use of controlled experimentation capabilities and methods. His expertise lies in scientific process, critical infrastructure security, protocol development, cyber deception, and network security. Edgar authored a textbook, Research Methods for Cyber Security, which he taught at Washington State University as an adjunct professor. Thomas has a BS and MS in computer science, with a specialization in information assurance.

Dr. Veronica Adetola is a chief research scientist at PNNL. She has more than 12+ years of experience in research, development, and demonstration of advanced control solutions for high-performing buildings, grid-interactive distributed energy resources, transport refrigeration, and aerospace systems. She is currently the principal investigator for multiple Department of Energy-funded projects developing model-based and data-driven control solutions to improve energy systems' efficiency, reliability, and resiliency. She is also the thrust lead for the Resilience Through Data-driven, Intelligently Designed Control (RD2C) initiative, focused on sensing, control and coordination of cyber-physical systems. Adetola has authored a book, three book chapters, and more than 40 peer-reviewed journal publications and conference papers. Adetola was a board of governors member of the IEEE Control Systems Society in 2019 and currently serves as associate editor for IEEE Transactions on Control Systems Technology. She has a PhD in engineering (control systems).

THE WSU-PNNL ADVANCED GRID INSTITUTE

GridAPPS-D™: Distribution Management Platform for Advanced Distribution Systems Operations

~ by ~

ALEXANDER ANDERSON, Power Systems Research Engineer, Distributed Systems Group,
Pacific Northwest National Laboratory (PNNL)

ANDY REIMAN, Power Systems Engineer and Senior Researcher,
Pacific Northwest National Laboratory (PNNL)

~ and ~

JIM OGLE, Chief Electrical Engineer
Pacific Northwest National Laboratory (PNNL)

Tuesday, April 26, 2022 • 11:00 AM – Noon (PT) • TEAMS ONLY
[Click here to join meeting]

ABSTRACT

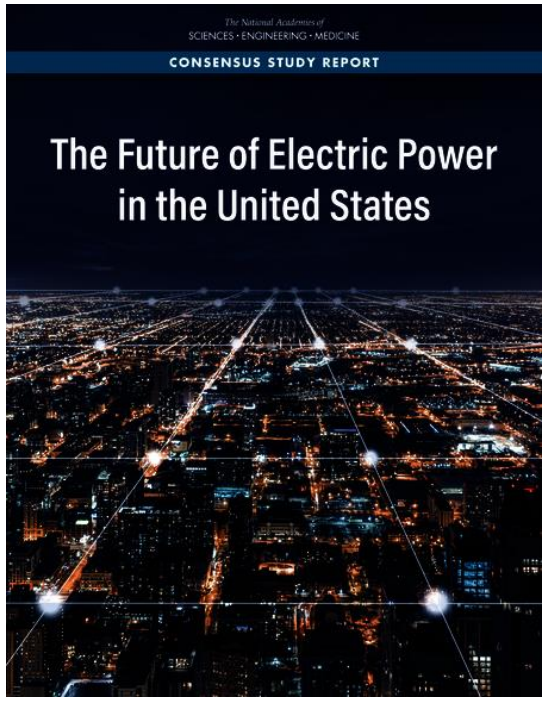
GridAPPS-D™ is an open-source platform that accelerates the development and deployment of portable applications for advanced distribution management and operations. The GridAPPS-D™ project is sponsored by the U.S. DOE's Office of Electricity, Advanced Grid Research. Its purpose is to reduce the time and cost to integrate advanced functionality into distribution operations to create a more reliable and resilient grid. WSU has been actively collaborating with PNNL since the inception of the project. In this talk, PNNL researchers will present an overview of the GridAPPS-D platform, application development process, and an overview of the example applications currently deployed. Next, we will discuss the ongoing efforts related to distributed approaches for distribution system management and the development of new applications within the GridAPPS-D platform. We will conclude with some new distributed applications efforts underway.

AGENDA

Alexander Anderson	Introduction to GridAPPS-D platform and services
Andy Reiman	Overview of Distributed GridAPPS-D apps and platform
Jim Ogle	Summarize recent efforts related to GridAPPS-D, distributed apps, and other synergistic activities with Washington State University

Pacific Northwest Regional Response to NASEM Report and Infrastructure Challenges/Opportunities

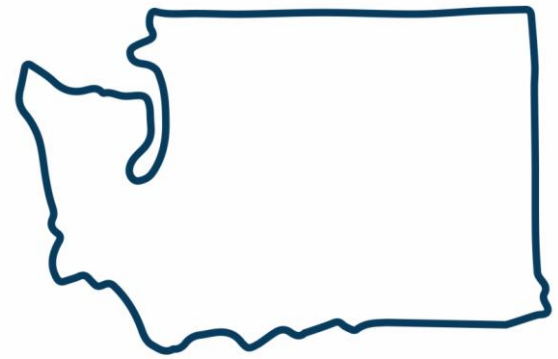
Coordinating: Sanjeev Pannala (WSU), Anjan Bose (WSU), Jeff Dagle (PNNL) and Noel Schulz (WSU/PNNL)



February 2021

Changing Generation Mix
- Replacing Coal & Natural Gas?
- Dispatchable versus non-dispatchable
- Climate Change impacts
- Storage Solutions

Changing Loads and Customers
- Smart Loads
- Electrification of Transportation and other systems
- Climate Change impacts
- Flexible Loads
  - Data Centers



AGI Industry Day – August 31, 2022

2022 PNNL/WSU ADVANCED GRID INSTITUTE (AGI)
Industry Day

Theme: Pacific Northwest Challenges and Opportunities for Power System Infrastructure Advancements & Clean Energy Goals

Wednesday, August 31
Technical Meeting - 9:30 am – 3:30 pm
WSU Wine Science Center Reception – 4:00-5:30 pm

WSU Tri-Cities Campus
Richland, WA

https://natlab.wsu.edu/grid/august-2022-agi-industry-day/

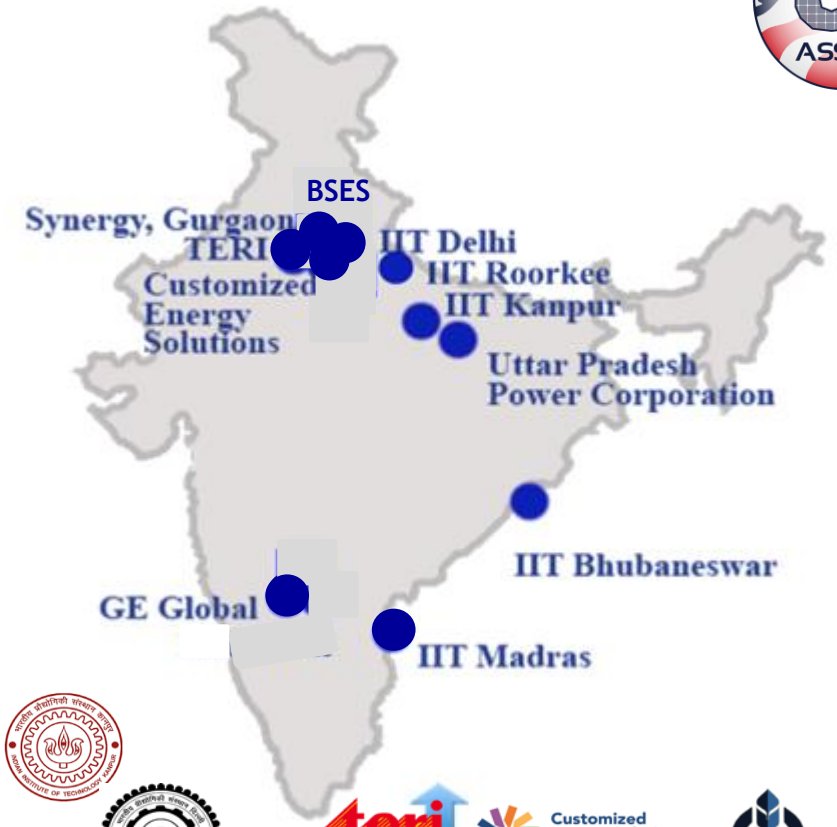
Join Us On-line!

Sign up today!

UI-ASSIST

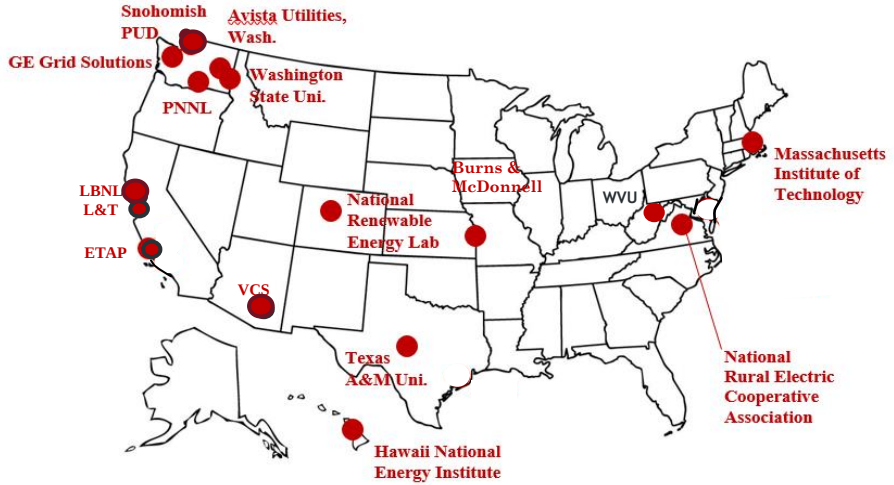
PROJECT TEAM

U.S. INDIA COLLABORATIVE FOR SMART DISTRIBUTION SYSTEM WITH STORAGE

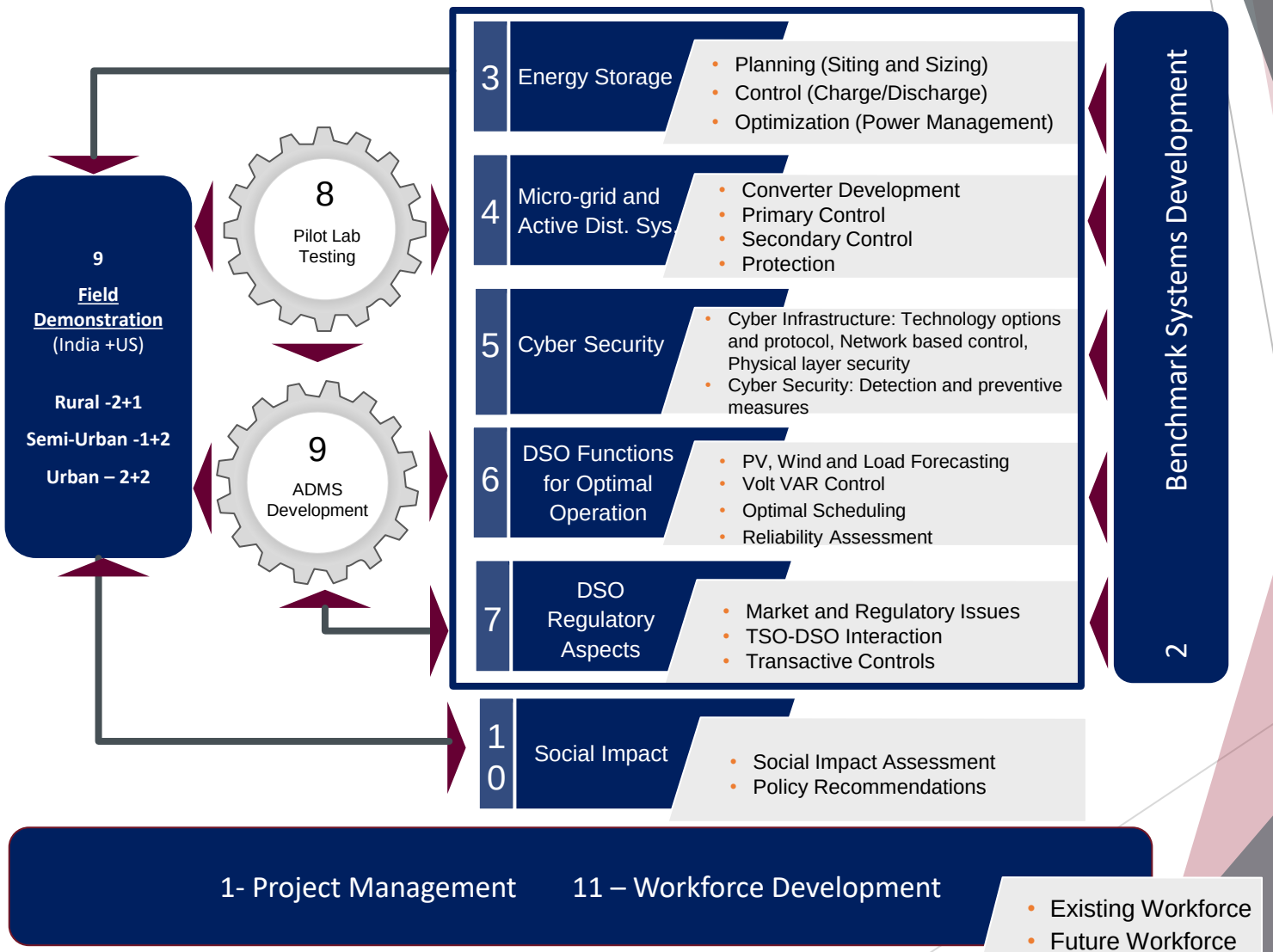


Red Indicates Team in USA

Blue Indicates Team in India



UI-ASSIST: Thematic Areas and Activities



New GSC Staff

Meet the new EECS GSC Staff

Smitha Bose has joined our department as the New Graduate Coordinator. She comes in with several years of experience from International Programs, where she served as an office manager and a DSO. She's been commended for her exemplary services to international students by going beyond the call of duty for diligence and care. A great team player with skills on working individually, likes to stay organized and provide guidance to students with best of her ability. In her spare time, she loves cooking, crafting, quilting and embroidery. She currently lives here in Pullman with her husband and son. Her daughter recently completed her undergraduate degree at UC Berkeley.

Tiffani Stubblefield is joining as the UI-ASSIST/GSC Operations Coordinator. The last few years Tiffani has been focused on stewardship and donor relations for local foundations. Tiffani is passionate about providing experiences that help everyone achieve both their personal and professional goals. She’s been awarded for her impressive ability to thrive in a team and for her individual skills in staying organized while assisting large teams and providing guidance across campus. In her spare time, Tiffani enjoys rafting, camping, and trying to run a marathon. She currently lives in Moscow, Idaho with her husband and two children.

GSC Notes and Key Information

GSC Key Information

- GSC Staff Catching up with Backlog – Thank you for your patience!
- Survey later this week to get information about this semester
  - Anyone taking qualifier this semester
  - Confirming Graduating this semester – POS should already be filed
  - Prelim or Graduation in Spring 2023, you must submit Program of Study ASAP

Required Training for Employed Students

- FERPA Training – Required for all TA's and people that work with student records or information. (online)
- ITA Exam – Required for international students working as TA's. (conducted via Zoom)
- Discrimination & Sexual Harassment Prevention Training – Required for all WSU employees. (online)
- RCR Training – Required for all persons conducting research. (online)
- Any additional training your advisor/employer deems necessary.

Enrollment Information

- You must enroll in a minimum of 10 credits if you have an assistantship or are an international student every semester
- You should enroll in at least one CPT_S/E_E 700/702/800 credit every semester
  - Make sure you register with your faculty advisor's name, or Smitha if you do not have a faculty advisor
- Regular tuition includes 10-18 credits, any extra credits will be an additional fee
- You cannot enroll yourself in 400-level courses
  - Smitha will need to do this for you for E_E/CPT_S courses
  - You can contact the Grad Coordinator for other subject areas
- You need to submit a form to Smitha to enroll in CPT_S/E_E 595 – Directed Study
- Enroll in courses as soon as you are able to avoid waitlists or cancellations

Transfer Requests

- You can request that some courses be transferred from another institution
  - You must have earned a grade of B or higher
    - If earned while working toward a master's degree (completed or not) you can apply the credit toward a Ph.D.
    - If earned toward a completed master's degree you cannot apply it to another master's degree.
  - You cannot request transfer of undergraduate courses
  - You may only transfer courses that have a WSU equivalent
  - Ph.D.
    - May transfer up to 12 credits; at the time of graduation, your coursework can only be 10 years old
  - M.S.
    - May transfer up to 6 credits; at the time of graduation, your coursework can only be 6 years old

Transfer Requests

- Process Graduate Course Transfer Requirements | School of Electrical Engineering & Computer Science | Washington State University (wsu.edu)
  - You must work closely with your advisor to pick transfer requests and make sure they fit with your overall program of study
  - You will submit:
    - Petition to Transfer Graduate Coursework
    - Program of Study Draft
    - Transfer Course Request Form
      - Course syllabi, textbook information, percentage of grade for homework, lab work, exams, etc. and related materials
- This can be a long process to have transfers approved, initiate any requests during your first semester

EECS Handbook – Being updated

- Important link 2021-2022 Graduate Student Handbook (wsu.edu)
- Key Changes and Policies to be aware of:
  - PhD programs now require 24 credits beyond your BS degree
  - Publication Requirement for PhD Students
- PhD and MS Thesis students:
  - Each PhD student by the time of graduation (technically by the PhD defense date) needs to have at least two top-tier papers published/accepted, preferably as a first-author. The list of top-tier publication venues (combination of conference and journals) are attached. This information should be submitted with the PhD defense scheduling form to the Graduate Coordinator for enforcing this policy. (EE faculty members want to make sure EE PhD students publish at least one journal paper by graduation.) Before taking the preliminary exam, at least one top-tier paper (conference or journal) should be accepted. This information should be submitted with the PhD preliminary exam scheduling form to Graduate Program Coordinator for enforcing this policy.
  - For MS thesis students, we encourage submission of one paper by the time of thesis defense, but it is not mandatory.

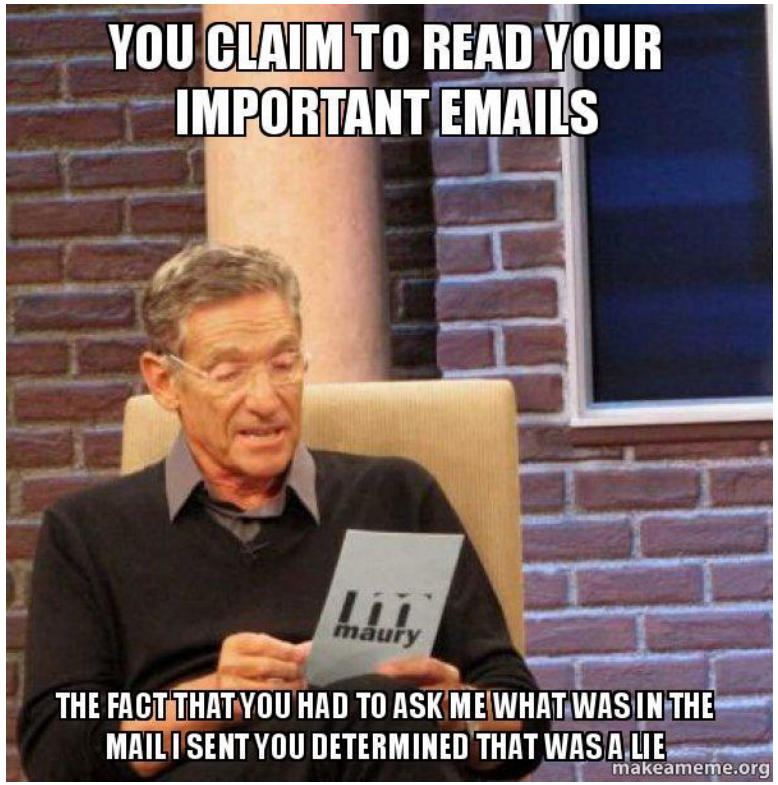
See list of publications on website here Publication Policy | School of Electrical Engineering & Computer Science | Washington State University (wsu.edu)

Best Practices

How to have a successful Grad Career

Best Practices - Communication

- Meet regularly with your advisor
- Read your emails
- Pay attention to deadlines
  - Put reminders in your phone or put them on a calendar
- Attend informational meetings
- Ask questions!
  - If you haven't received the information and can't find it on your own, just ask!



Working with your professors and your advisor -- TOP 5 list of things to do

- #5 Show up to class on time and be attentive for classes and meetings
- #4 Ask for help early on. Do not wait until midnight before an assignment is due
- #3 Make a written plan for your classes and for your research
- #2 Provide regular updates to your advisor on your progress
- #1 Talk with your advisor about balancing your research and class activities

WSU Graduate School & GPSA Resource Professional Development Initiative (PDI)

https://gradschool.wsu.edu/pdi/

Presentation Topic	Speaker	Date(s)	Time	Event Format
Keynote Event: Congrats! You're a TA - Now What?	Paul Buckley	08/30/2022	11:30am-1:30pm	In-Person & Zoom
Graduate Student Mental Health and Mental Health Resources	Marie Gray, Samantha Edgerton	09/06/2022	12:00pm-2:00pm	Virtual
Insurance 101:Terminology and Processes in the U.S.	Cody Tornow, Becky Meyer	09/08/2022	12:00pm-2:00pm	Virtual
Resources for International Students at WSU	Cody Tornow, Nitivia Jones	09/16/2022	11:00am-1:00pm	Virtual
Keynote Event: Formatting Your Thesis or Dissertation	Daniel Vickoren, Maria Kobets, Kristina Intinarelli, Megan Konkel	09/21/2022	10:00am-12:00pm	In-Person & Zoom
Professional Headshot Photoshoot		09/27/2022	11:00am - 1:00pm	In-Person
Keynote Event: Mindfulness Made Simple	Trymaine Gaither	10/05/2022	10:00am-12:00pm	In-Person & Zoom
Writing Workshop Series: EndNote Trainer	Chelsea Leachman	10/11/2022	10:00am-12:00pm	Virtual
Writing Workshop Series: Zotero Trainer	Lorena O'English	10/13/2022	10:00am-12:00pm	Virtual
Writing Workshop Series: Literature Review	Lorena O'English, Haixia He	10/19/2022	11:00am-1:00pm	Virtual
Writing Workshop Series: Critical Reading Strategies	Lorena O'English	10/27/2022	12:00pm-2:00pm	Virtual

Best Practices - Balance

- Make time for yourself
  - Make a reasonable schedule and stick to it
- Adjust your schedule if you aren't sleeping enough
- Take advantage of WSU and Pullman area amenities:
  - Student Recreation Center
  - Cougar Health
    - Medical Clinic
    - Vision Clinic
    - Counseling and Psychological Services\
  - Great places to hike around area
  - Community activities

Questions?