

Jonas Wagner

Curriculum Vitae

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Education

- Since **University of Texas at Dallas**
August 2020 PhD Mechanical Engineering
Concentration: Dynamic Systems and Controls
Overall GPA: 3.78
- Sept 2016 - **University of Wisconsin - Platteville**
May 2020 B.S. Engineering Physics and B.S. Electrical Engineering
Emphasis: Control Systems, Minor: Mathematics
Overall GPA: 3.37
- Sept 2012 - **Oshkosh West High School**
June 2016 B.S. Engineering Physics and B.S. Electrical Engineering
Emphasis: Control Systems, Minor: Mathematics
Overall GPA: 3.6
- Sept 2014 - **University of Wisconsin - Oshkosh**
May 2016 CAPP and Youth Option, (Calculus 1,2,3, Physics 1,2 and Comp Math)

Teaching Experience

- Fall 2021 **Teaching Assistant - ***INSERT COURSE NAME HERE*****
Mechanical Engineering, University of Texas at Dallas
Professors: *****
o *Update this*
- Aug 2020 - **Teaching Assistant - Introduction to Mechanical Engineering I & II**
May 2021 Mechanical Engineering, University of Texas at Dallas
Professors: Dr. Oziel Rios and Dr. Dani Fadda
o Managed discussion forums to answer student questions and provide supplementary instruction
o Graded weekly deliverable and answered any grading related questions
o Communicated with students via email and MS Teams to assist in assignment related questions
- Spring 2020 **Lab Assistant - Introduction to Automatic Controls**
Electrical and Computer Engineering, University of Wisconsin Platteville
Professor: Dr. Mehdi Roopaei
o Supervised and instructed junior and senior engineering students in control labs
o Transitioned DC-motor control labs into virtual Simulink-based labs (still used today)
o Provided students with video lectures for completing lab assignments virtually
- Fall 2019 **Lab Assistant - Introduction to Engineering Projects**
Electrical and Computer Engineering, University of Wisconsin Platteville
Professor: Dr. Mehdi Roopaei
o Assisted in teaching first year undergraduate students through the Electrical Engineering Module
o Guided students through a lab performing simple analysis and testing of amplifier circuits

December **Guest Lecturer - FEA Automation Workshop**

2019 Engineering Physics, University of Wisconsin Platteville

Professor: Dr. Gokul Gopalakrishnan

- Hosted a workshop for senior engineering students for automating FEA testing using ANSYS workbench

July 2019 **Student Assistant - Online Course Development**

Center for Distance Learning, University of Wisconsin Platteville

Professor: Dr. Mehdi Roopaei

Assisted in the development of course materials for the online graduate course:
Engineering 7310 - Control Systems Engineering I

Fall 2016 - **Robot Design and Controls Mentor**

Spring 2020 FIRST Robotics Competition Team 171, Platteville, WI

- Mentor High School students to design, build, and control robots for competition
- Teach fundamental math and physics concepts while inspiring students to pursue STEM careers
- Facilitate the logistics of traveling for competition and outreach events
- Restructured the club administration to allow expansion of the organization to additional STEM programs throughout the area K-12 education system

Computer Skills

Programming Experience

Basic C/C++/C#, VBA, putty

Proficient Simulink, Mathematica, Linux, Git, L^AT_EX

Advanced PYTHON, numpy, matplotlib, MATLAB

Engineering Tools

Proficient AutoCAD, ANSYS Workbench, Solidworks

Advanced Autodesk Inventor

Teaching Tools

Basic Adobe Photoshop and Premier Pro, MS Stream

Proficient OBS Studio, MS Teams/PowerPoint/OneNote, Youtube Studio

Advanced eLearning/Blackboard, Slack, MS Outlook/Word/Excel

Relevant Coursework

Fall 2021 Engineering Optimization · Elementary Analysis I

Spring 2021 Nonlinear Systems · Convex Optimization · Dynamics of Complex Networks and Systems

Fall 2020 Linear Systems · Optimal Estimation & Kalman Filters · Probability & Random Variables

Spring 2020 Digital Signal Processing · Measurements and Instrumentation · Senior Design

Fall 2019 Discrete Time Controls · Electric and Magnetic Fields

Spring 2019 Modern Control Systems · Engineering Physics Sensors Lab · Analog Electronics

Fall 2018 Automatic Controls · Logic and Digital Design · Applied Mechanics

Spring 2018 Signals and Systems · Engineering Computation · Applied Optics

Awards

Spring 2021 UTD Mechanical Engineering - Outstanding Contributions to Undergraduate Education

Fall 2019 Undergraduate Research, Scholastic and Creative Activity (URSCA) Scholarship
Spring 2019 UW Platteville Prototype Hackathon - 3rd Place
Spring 2019 Foxconn Smart Cities Smart Futures Competition - Winner (Round 1 & 2)
Honorable Mention (Round 3)
Spring 2019 Undergraduate Research, Scholastic and Creative Activity (URSCA) Scholarship

Undergraduate Research Experience

- Fall 2018 - **Projects Involving Machine Learning and Virtual Reality**
Spring 2020 Electrical and Computer Engineering, University of Wisconsin - Platteville
Advisor: Dr. Mehdi Roopaei
- Disaster Response Applications (ML, Edge Analytics, and VR)**
- Wrote several grant proposals (approx. \$15 K awarded) that funded research into the use of ML and edge analytics within a multi-agent framework for disaster response
 - Developed a virtual framework to develop and test an object detection algorithm
 - Working on training a neural network using the Darknet framework to perform object detection on a custom database
 - Submitted a manuscript detailing this virtual framework to the IEEE 10th Annual Computing and Communication Workshop and Conference
- Computer Vision at the Edge on a Jetson Nano**
- Explored the Jetson Nano Platform and worked within a Linux environment
 - Used existing tools to connect a CSI camera and detect faces using Haar classifiers
- Applying VR to Education**
- Assisted in the preliminary development of a VR framework for distance education
 - Assisted other students in creating a dynamic system visualization platform to provide students with an interactive environment to understand dynamic system modeling
- Exploring Unity ML Agents**
- Worked with Unity ML Agents to learn about ML and reinforcement learning methods
 - Used pre-trained ML models and explored how well agents could perform the same objective in modified virtual environments
- Spring 2019 **Implementing K-Means and EM-Algorithm in MATLAB and Python**
- Spring Electrical and Computer Engineering, University of Wisconsin - Platteville
2020 Advisor: Dr. Hynek Boril
- Learned about fundamental statistical modeling and ML techniques while also learning Python
- Implemented K-means Clustering and the EM-Algorithm to statistically model data
 - Used Windows Subsystem for Linux and Midnight Commander to run Python naively
- Fall 2018 - **Computational Analysis of MEMS Pressure Sensors**
Summer Engineering Physics, University of Wisconsin - Platteville
2020 Advisor: Dr. Gokul Gopalakrishnan
- Evaluated the limitations of different methods used for modeling the behavior of silicon nanomembranes for MEMS pressure sensing applications
- Focused primarily on automating the computation and analysis process
 - Used ANSYS Workbench to perform FEM analysis on single crystalline silicon membranes under uniform pressure
 - Used Python (NumPy and pandas) to automate data analysis
 - Created plots to visualize data with matplotlib
- June 2019 **LabVIEW Programming of a Mobile Robot**
Mechanical Engineering, University of the West of Scotland - Paisley
Advisor: Dr. Luc Rolland
- Short-term study abroad research trip: Worked on developing a control algorithm for a sbRIO controlled robot that avoids obstacles and maps an environment autonomously

Industry Experience

May 2018 - **Summer Employee - Blown Film Department**

Aug 2018 Bemis Converter Films, Oshkosh, WI

- Helped operators of Blown Film Machines during 12-hour shifts
- Operated forklift to transport supplies and waste
- Filed reports to insure quality and accuracy of film composition

May 2017 - **Summer Employee - Flexographic Press Department**

Aug 2017 Bemis Specialty Films, Oshkosh, WI

- Assisted in mounting for flexographic printing presses
- Operated Tug to transport flexographic press cylinders
- Organized mounting priorities for 12 machines during 12-hour shifts

Recent Volunteer Activities

Fall 2016 - **Robot Design and Controls Mentor**

Spring 2020 FIRST Robotics Competition Team 171, Platteville, WI

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Dec. 2019 **Event Volunteer - Toy Modification**

UW-Platteville Holiday Toy Hack

Oct. 2019 **Virtual Reality Day for Kids**

Platteville Public Library

May 2018 **Event Volunteer - Robotics Demo**

College of Engineering, Math, and Science Expo

Extracurricular Activities

Since 2020 **FAE@UTD** - For Autistic Empowerment

2016 - 2020 **FIRST Robotics** - FRC Team 171

2018 - 2020 **Society of Physics Students**

2017 - 2020 **Pioneer Maker Club**

2016 - 2020 **Choir** - University Singers & Singing Pioneers