

# Jayson Boubin

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## **WORK EXPERIENCE**

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<b>Assistant Professor</b> <i>Binghamton University Department of Computer Science</i>	2022-Present
<b>Research Contractor</b> <i>Air Force Research Lab, AutoWav Project</i>	2019-Present
<b>PhD Student and Research Fellow</b> <i>ReRoutLab, Ohio State University</i>	2017-2022
<b>Research Fellow</b> <i>Air Force Institute of Technology</i>	2014-2017
<b>Undergraduate Research Assistant</b> <i>PC2 Lab</i>	2013-2014

## **EDUCATION**

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<b>PhD in Computer Science</b> <i>The Ohio State University</i>	2017-2022
<b>M.S. In Computer Science</b> <i>The Ohio State University</i>	2020
<b>B.S. in Computer Science</b> <i>Miami University</i>	2013-2017

## **AWARDS AND HONORS**

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NSF Graduate Research Fellowship (2019)

Ohio State CSE Graduate Research Award (2022)

Ohio State College of Engineering Graduate Fellowship (2017)

Best Student Paper, Human Performance Modeling Track,  
HFES (2017) (C2)

Best Poster Honorable Mention,  
Ohio State CSE Graduate Research Poster Expo (2018) (P6)

KAOC Integrated Product Team Award

AutoWav Project (2019) (P7, C5, C6)

NSF Travel Grants

IEEE ICAC (2017, 2019), IEEE ACSOS (2020), IEEE/ACM SEC (2019)

## **JOURNAL PAPERS**

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- (J3) Anthony Baietto, **Jayson Boubin**, Patrick Farr, Trevor Bihl, Aaron Jones, Christopher Stewart  
*Lean Neural Networks for Autonomous Radar Waveform Design*  
Sensors 2022: IF 3.5
- (J2) Ming-Der Yang, **Jayson Boubin (Corresponding)**, Hui-Ping Tsai, Hsin-Huang Tseng, Yu-Chun Hsu, Christopher Stewart  
*Adaptive Autonomous UAV Scouting for Rice Lodging Assessment Using Edge Computing with Deep Learning EDANet*  
Computers and Electronics in Agriculture 2020  
**(Ranked #3 Journal in Agriculture: IF 5.5)**
- (J1) Zichen Zhang, **Jayson Boubin**, Christopher Stewart, Sami Khanal  
*Whole-Field Reinforcement Learning: A Fully Autonomous Aerial Scouting Method for Precision Agriculture*  
Sensors 2020: IF 3.5

## **CONFERENCE PAPERS**

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- (C10) **Jayson Boubin**, Avishek Banerjee, Jihoon Yun, Haiyang Qi, Yuting Fang, Steve Chang, Rajiv Ramnath, Anish Arora  
*PROWESS: An Open Testbed for Programmable Wireless Edge Systems*  
ACM Practice and Experience in Advanced Research Computing (PEARC)
- (C9) Anthony Baietto, **Jayson Boubin**, Patrick Farr, Trevor Bihl  
*Lean Neural Networks for Real-time Embedded Spectral Notching Waveform Design*  
IEEE International Symposium on Industrial Electronics (ISIE)
- (C8) Maxwell Taylor, **Jayson Boubin**, Christopher Stewart, Feng Qin, Haicheng Chen  
*A Study on Software Bugs in Unmanned Aerial Systems*  
International Conference on Unmanned Aircraft Systems (ICUAS) 2021  
**(Ranked #10 Outlet for Aerospace)**
- (C7) Alwyn Burger, Patrick Urban, **Jayson Boubin**, Gregor Schiele  
*An Architecture for Solving the Eigenvalue Problem on Embedded FPGAs*  
International Conference on Architecture of Computing Systems (ARCS) 2020
- (C6) Patrick Farr, Aaron Jones, Trevor Bihl, **Jayson Boubin**, Ashley DeMange  
*Waveform Design Implemented on Neurmorphic Hardware*  
IEEE International Radar Conference 2020
- (C5) **Jayson Boubin**, Aaron Jones, Trevor Bihl  
*NeuroWav: Toward Real-Time Waveform Design for VANETs using Neural Networks*  
IEEE Vehicular Networking Conference (VNC) 2019

- (C4) **Jayson Boubin**, Naveen T.R Babu, Christopher Stewart, John Chumley, Shiqi Zhang  
*Managing Edge Resources for Fully Autonomous Aerial Systems*  
IEEE/ACM Symposium on Edge Computing (SEC) 2019  
**(Flagship Edge Computing Conference)**
- (C3) **Jayson Boubin**, John Chumley, Christopher Stewart, Sami Khanal  
*Autonomic Computing Challenges in Fully Autonomous Precision Agriculture*  
IEEE International Conference on Autonomic Computing (ICAC) 2019
- (C2) **Jayson Boubin**, Christina Rusnock, Jason Bindewald  
*Quantifying Compliance and Reliance Trust Behaviors to Influence Trust in Human-Automation Teams*  
Human Factors and Ergonomics Society Annual Meeting (HFES) 2017
- (C1) Christina Rusnock, **Jayson Boubin**, Joseph Giametta, Tyler Goodman, Anthony Hillesheim, Sungbin Kim, David Meyer, Michael Watson  
*The Role of Simulation in Designing Human-Automation Systems*  
Human Computer Interaction International 2016

## **PREPRINTS**

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- (PR1) **Jayson Boubin**, Codi Burley, Peida Han, Bowen Li, Barry Porter, Christopher Stewart  
*Programming and Deployment of Autonomous Swarms using Multi-Agent Reinforcement Learning*  
ArXiv 2021

## **UNDER SUBMISSION OR PREPARATION**

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- (U2) **Jayson Boubin**, Avishek Banerjee, Jihoon Yun, Haiyang Qi, Yuting Fang, Rajiv Ramnath, Anish Arora  
*PROWESS: An Open Testbed for Programmable Wireless and Edge Systems*
- (U1) **Jayson Boubin**, Chengyi Qu, Zichen Zhang, John Chumley, Sami Khanal, Prasad Calyam, Christopher Stewart  
*A Roadmap for Rapid Prototyping and Deployment of UAV Swarms*  
Under Preparation

## **PUBLISHED ABSTRACTS**

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- (A3) **Jayson Boubin**, Zichen Zhang, John Chumley, Christopher Stewart  
*Data-Parallel Versus Task-Parallel Swarms for Small Unmanned Aerial Systems*  
Internet of Things Design and Implementation (IoTDI) 2022
- (A2) Bowen Li, Nat Shineman, **Jayson Boubin**, Christopher Stewart  
*Comparison of Object Detectors for Fully Autonomous Aerial Systems Performance*  
ACM/SPEC International Conference on Performance Engineering 2021
- (A1) **Jayson Boubin**, Shiqi Zhang, Venkata Mandadapu, Christopher Stewart  
*Poster Abstract: Characterizing Computational Workloads in UAV Applications*  
ACM/IEE International Conference on Internet of Things Design and Implementation (IoTDI) 2018

## **POSTERS, PRESENTATIONS, AND DEMOS**

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- (P9) **Jayson Boubin**, Christopher Stewart  
*Design and Implementation of Fully Autonomous Aerial Swarms*  
Talk: IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS) 2020 Doctoral Symposium
- (P8) **Jayson Boubin**, Christopher Stewart  
*SoftwarePilot: Fully Autonomous Aerial Systems made Easier*  
Half-day Tutorial: IEEE International Conference on Autonomic Computing and Self-Organizing Systems (ACSOS) 2020
- (P7) **Jayson Boubin**, Zichen Zhang, Shiqi Zhang, Christopher Stewart  
*SoftwarePilot: An Open Source Middleware for Fully Autonomous Aerial Systems*  
Poster: ACM Student Research Competition, International Symposium on Microarchitecture (MICRO) 2019
- (P6) Aaron M. Jones, Trevor Bihl, Ashley DeMange, Peter John-Baptiste, **Jayson Boubin**, Patrick Farr  
*AutoWav Project: AI/ML for Cognitive EW*  
Poster: Association of Old Crows Kittyhawk Week Conference
- (P5) **Jayson Boubin**, Christina Rusnock  
*Quantifying and Evaluating Trust in Automated Systems*  
Talk: Industrial and Systems Engineers Research Conference (ISERC) 2016
- (P4) **Jayson Boubin**, Christina Rusnock, Michael Miller  
*Eliciting an Algorithm to Replicate Human Trust in Automation in the Domain of Reliance*  
Poster: DESS 2015, Soche Poster expo 2015
- (P3) **Jayson Boubin**, Christina Rusnock, Michael Miller  
*Simulating Compliance and Reliance*  
Talk: Cincinnati-Dayton INFORMS 2015
- (P2) **Jayson Boubin**, Christina Rusnock  
*Modeling Cognitive Workload and Fatigue for Defensive Cybersecurity Operators*  
Poster: AFIT Summer Intern Poster Session 2014
- (P1) **Jayson Boubin**, Paul Bondurant, D.J. Rao  
*Dynamic Process Migration in Agent Based Simulation*  
Poster: Miami University Undergraduate Research Forum 2014

## **TEACHING**

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### **Graduate Teaching Assistant**

2019

*The Ohio State University*

As and GTA, I was the instructor of record for CSE 2431: Systems II: Introduction to Operating Systems. I taught students about fundamental operating systems concepts including processes, threads, synchronization, memory management, I/O, etc, with a focus on Linux. I was responsible for lecturing, developing and managing course materials, holding office hours, and submitting and approving grades.

Mean Student Evaluation Score: **4.6/5**

## Undergraduate Teaching Assistant

2017

*Miami University*

As an Undergraduate TA at Miami University, I graded assignments and held weekly help sessions for Dr. Jianhui Yue's Systems 2: Operating Systems course.

## ADVISING AND MENTORSHIP

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### Mentored Graduate Students

Anthony Baietto (2019-Present), CS PhD Student at OSU

### Undergraduate Research Assistants

Jack Dubbs (2019-2020), KeyW Corp

Pieda Han (2019-2020), USC

Yujie Zhao (2019-2020)

Sadaqat Ali (2019-2020), Nationwide

Bowen Li (2019-2021), USC

Nat Shineman (2019-2021)

Chengyuan Zhou (2019-2021), USC

Shiqi Zhang (2017-2019), Morgan Stanley

## PROFESSIONAL SERVICE

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### Committee Member:

- Social Media Chair, IoTDI 2022
- Technical Program Committee Member, IEEE DASC 2021
- Poster and Demo Program Committee member, IoTDI 2020

### Reviewer:

- Journal of Parallel and Distributed Computing (2021)
- IEEE International Conference on Communications (2021)
- PeerJ Computer Science Journal (2021)
- ACM/IEEE International Conference on Cyber-Physical Systems (2022)

### Other:

- OHI/O HackAI Hackathon Judge (2019)
- ACM-W Buck-I-Code Mentor (2018)

## SOFTWARE

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### SoftwarePilot

I am the lead developer of SoftwarePilot, a middleware that supports fully autonomous aerial systems. SoftwarePilot has been cloned hundreds of times, and is used by myself, researchers in the ReRoutLab, and a group of scientists and hobbyists around the world to develop state of the art autonomous systems using cutting edge AI libraries. SoftwarePilot is open source and available on Github: [github.com/boubin/jg/SoftwarePilot](https://github.com/boubin/jg/SoftwarePilot)