PIYUSH AGADE

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EDUCATION

Ph.D. candidate (GPA: 3.95, Cumulative, M.S. & Ph.D. GPA: 3.67) Aug 2025
Agricultural and Biological Engineering (Concentration: Hydrological Sciences)
University of Florida, Gainesville, FL, USA

Master of Science (GPA: 3.43) May 2017
Computer and Information Science and Engineering
University of Florida, Gainesville, FL, USA

Bachelor of Technology (First class with distinction) May 2014
Electronics and Telecommunications Engineering
Maharashtra Institute of Technology, Pune, India

TEACHING EXPERIENCE

4-H Youth Event, Hillsborough County – *Presenter* Jan 2025

- Delivered a 45-minute technical seminar on the GatorByte platform to 4-H youth members.
- Presented on the system's creation, functionality, and application in improving data collection for urban streams.
- Detailed the engineering design process, including challenges in computer-aided design and hardware enclosure fabrication, to foster critical thinking and problem-solving skills.

Florida 4-H University, University of Florida – *Presenter* July 2024

- Led a 3-hour hands-on workshop, "Be a Water Detective: Help Keep Our Environment Healthy!", for 4-H youth members.
- Designed and conducted a live field demonstration of the GatorByte platform in a campus creek, simulating pollutants to teach environmental sensing concepts.
- Effectively communicated complex engineering topics, including sensor technology, hardware design, and data collection, to a youth audience.

ABE 3000C, University of Florida – *Teaching Assistant* Jan 2022 - April 2022

- Co-facilitated weekly lab sessions, providing hands-on instruction and guidance on fundamental biological engineering techniques.
- Supervised and assisted students with a variety of experiments, including spectrophotometry, bacterial transformation, fermentation, and bioprocessing.
- Graded lab reports, providing constructive feedback to help students develop their skills in data analysis, interpretation, and scientific communication.

UF Kickboxing Club – *President and Head Instructor* May 2019 – May 2022

- Led a student organization of over 60 regular members, demonstrating skills in student engagement, recruitment, and community building.
- Served as a boxing and kickboxing instructor, developing lesson plans and providing individualized coaching to foster skill development in a safe and supportive environment.
- Managed club logistics and mentored members, helping to grow the fight team from 13 to 37 members.

- Developed an *Instructor Training Program (ITP)*, resulting in the instructor team going from three instructors to over ten members.
- Designed a web-based tool for managing the organization's finances, treasury, student progress, instructor scheduling, and instructor trainings, which directly resulted in improved club efficiency and cohesion amongst the various aspects of the organization.

Gator Salsa Club – *President and Instructor Coordinator* May 2022 – June 2025

- Directed club activities and recruitment, leading to a membership increase from ~40 to ~150, and an increase in the size of the instructor team from ~10 to ~25, fulfilling a key student support and advisory role.
- Served as a Salsa, Bachata, and Casino instructor, adapting instruction for learners of varying skill levels in a large group setting.
- Cultivated an inclusive and supportive group learning environment, resulting in high member retention and engagement.
- Pioneered *Safety Officer Program (SOP)* to ensure the safety and comfort of all attending students, regardless of their identity and beliefs, besides training the safety officers in handling safety concerns, leading to a safer student experience at events.
- Introduced *Officer Hours* to assist student attendees with progressing in their journey as a Latin dancer, resulting in a palpable improvement in the quality of dancers in the organization.

RESEARCH AND PROFESSIONAL EXPERIENCE

Agricultural and Biological Engineering Department – *Graduate Assistant* Aug 2019 – July 2025

- Executed an end-to-end development process including custom PCB design (EAGLE) and 3D-printed enclosures (Solidworks); firmware programming (Arduino); and development of a cloud backend (NodeJS), data visualization dashboard (LeafletJS), and cross-platform configuration applications (Electron, Flutter).
- Applied a systems-thinking approach to solve a real-world environmental monitoring problem, demonstrating proficiency in electronics, coding, AI (data analytics), and design as required by the instructional role.
- Managed the project from ideation through multiple hardware and software iterations, demonstrating a commitment to safety, rigorous testing, and best practices in a hands-on engineering environment.

E-Learning, Technology and Communications – *OPS Web Developer* May 2024 – August 2024

- Designed and developed the helpdesk website for the College of Education, University of Florida, Gainesville, FL, streamlining issue resolution, addressing student queries, and facilitating quicker responses.
- Mentored colleagues in programming methodologies and design patterns.
- Developed AI tools to assist colleagues in streamlining their workflow.

IFAS Program for Resource Efficient Communities – *OPS Developer* Sept 2017 – Aug 2019

- Developed Python scripts for preprocessing raw water consumption data from multiple Florida utilities.
- Created a suite of web visualization tools (H2OSAV) to derive and display insights using NodeJS, CGI, SQLite, and LeafletJS.
- Contributed to the design of a data pipeline that standardized and accelerated the conversion of raw data into actionable information.

PUBLICATIONS

- Agade, P., & Bean, E. (2023). GatorByte - A Low-Cost, Real-Time Water Resource Monitoring Platform. *HardwareX*. DOI: 10.1016/j.ohx.2023.e00427
- Agade, P., & Bean, E. (2022). GatorByte: A Water-Quality Mapping Buoy for Locating Watershed Pollution Sources. *IEEE Sensors*. DOI: 10.1109/SENSORS52175.2022.9967172
- Agade, P. & Bean, E. (2020). "GatorByte-An open-source platform for low-cost, real-time water resource monitoring". In Proc. of World Environmental and Water Resources Congress 2020: Groundwater, Sustainability, Hydro-Climate/Climate Change, and Environmental Engineering. *ASCE Environmental and Water Resources Institute*. 2020. DOI: 10.1061/9780784482964.003
- Agade, P. (2014). Electronic Control Unit and Skid Detection in a Motor Bike. *International Journal of Scientific Research (IJSR, Issue: 12, SSN No 2277 - 8179)*

RESEARCH PRESENTATIONS

- Agade, P. & Bean, E. (2025). "Evaluating GatorByte (a Lagrangian Monitoring System) for Spatiotemporal Water Quality Monitoring in an Urban Creek in Gainesville, FL." ABE Poster Symposium. Gainesville, FL. March 26, 2025.
- Agade, P. & Bean, E. (2023). "An Internet of Things-based Low-Cost, Spatiotemporal, and Realtime Water Resource Monitoring Buoy", ASABE International Meeting, Digital Water. Omaha, NE. July 10, 2023.
- Agade, P. & Bean, E. (2023). "GatorByte – An Internet of Things-based Low-Cost, Spatiotemporal, and Real-time Water Resource Monitoring Buoy". 2023 AEES Annual Meeting. AEES. Tampa, FL. June 6-9, 2023.
- Agade, P. & Bean, E. (2023). Validation of an Internet of Things-based low-cost, spatiotemporal real-time water resource monitoring platform. 2023 World Water and Environmental Congress. ASCE EWRI. Henderson, NV. May 21-25, 2023.
- Agade, P. & Bean, E. (2022). "GatorByte – A Low-Cost, Real-time Water Resource Monitoring Buoy." ABE Poster Symposium. Gainesville, FL. March 9, 2023.
- Agade, P., et al. (2022). "GatorByte: A Water-Quality Mapping Buoy for Locating Watershed Pollution Sources," *IEEE SENSORS*. October 30, 2022.
- Agade, P. & Bean, E. (2022). Presenter, Water Conservation: Innovations Disrupting the Status Quo. Florida-International Agriculture Innovation Summit. March 31, 2022.
- Agade, P. & Bean, E. (2022). "GatorByte – A Low-Cost, Real-time Water Resource Monitoring Buoy." ABE Poster Symposium. Gainesville, FL. March 28, 2022.
- Agade, P. & Bean, E. (2022). "GatorByte – A Low-Cost, Real-time Water Resource Monitoring Buoy." 8th UF Water Institute Symposium. Gainesville, FL. February 22, 2022.
- Agade, P. & Bean, E. (2021). GatorByte – A Low-Cost, Real-Time Water Resource Monitoring Platform. American Ecological Engineering Society Virtual Poster Symposium. May 25-26, 2021.
- Agade, P. (2021). "An Open-Source Platform for Low-Cost, Real-Time Water Resource Monitoring". Institute of Biological Engineering Annual Conference, Virtual. April 10, 2021.
- Agade, P., & Bean, E. (2021). "GatorByte: a low-cost, water quality monitoring platform." Southwest Florida Water Management District Green Industries Board. March 9, 2021.
- Agade, P. & Bean, E. (2020). "GatorByte – A Low-Cost, Real-Time Water Resource Monitoring Platform". 2020 American Ecological Engineering Society Annual Meeting, Virtual Poster Symposium. Online. June 1-5 & 11, 2020.

- Agade, P. & Bean, E. (2020). “GatorByte – An Open-Source Platform for Low-Cost, Real-Time Water Resource Monitoring,” UF Water Institute Symposium. Poster Presentation. Feb 24, 2020.
- Agade, P., Bean, E., & Reisinger, A. (2019). “GatorByte: An Open-Source Platform for Low-Cost, Real-Time Water Resource Monitoring”. 2019 American Society of Agricultural and Biological Engineers International Meeting. ASABE, Boston, MA. July 9, 2019.
- Agade, P. (2019). GatorByte – An Open-Source Platform for Low-Cost, Real-Time Water Resource Monitoring. Warren B. Nelms Annual IoT Conference. Gainesville, FL. March 12, 2019.

GUEST LECTURES AND STUDENT PANELS

- Graduate Student Panel, ABE 2012C: Introduction to Biological Engineering Course, University of Florida, Gainesville, FL, October 7, 2024.
- Graduate Student Panel, Society of Hispanic Professional Engineers, “What is Research?”, Gainesville, FL, October 13, 2022.
- Guest Lecture, ABE 3000C: Applications in Biological Engineering Course, University of Florida, Gainesville, FL, April 11, 2022.

RELEVANT TECHNICAL AND FABRICATION SKILLS

- **Hardware Design & Fabrication:** Circuit Design (EAGLE), 3D Modeling & Design (SolidWorks), 3D Printing, Circuit Assembly, Soldering, and Testing
- **Programming & Software:** Python, Java, C++, JavaScript, Arduino, NodeJS, AngularJS, Flutter, ElectronJS
- **Data & Cloud Technologies:** MySQL, SQLite, MongoDB, AWS, Firebase
- **Field Instrumentation:** Experience with setup, maintenance, and operation of field equipment, including in situ sensors, ISCO samplers, and Hydrolab OTT water quality sensors

SELECTED PROJECTS

Box File Sharing – *ExpressJS* Aug 2024 – Dec 2024
- Developed a personal cloud "flash drive" web application for sharing files with a configurable expiration timer and URL endpoint.
- Extended functionality to incorporate a URL shortening service.

Kord – *ElectronJS* Jan 2019 – Jan 2022
- Created a free and open-source productivity application for Windows that enables system-wide chorded keyboard shortcuts, similar to those in code editors.
- Designed with a plugin architecture to allow for extensible actions, including running applications, executing commands, and integrating with tools like EventGhost.

Automoto – *Particle Boron, EAGLE, SolidWorks, ExpressJS, SQLite* Aug 2020 – Dec 2020
- Designed and developed an IoT-based vehicle fleet management system to replace manual, paper-based record keeping for departmental vehicles.
- Designed and fabricated custom PCB using EAGLE for a compact, low-power node that collects vehicle data via an OBD-II adapter.
- Developed the firmware, server backend, and web dashboard for data visualization and configuration.
- Inspired the development of ABE’s RideHub fleet tracking software.

UF Club Dashboard – *ExpressJS, MySQL, jQuery* Jan 2019 – Jan 2020
- Developed a web-based website and an administrative console to manage affairs for student organizations,

including the UF Kickboxing and Gator Salsa clubs.
- The tool enhanced organizational efficiency, improved member management, and facilitated recruitment tracking.

Psyc – *ElectronJS* Feb 2017 – May 2017
- Designed and developed a multifunctional desktop application for Linux featuring a markdown note editor, a to-do list manager, and various widgets.
- Implemented features such as cloud backup, PIN protection, and desktop widgets, including a Pomodoro timer and dictionary.

Electronic Control Unit & Skid Detection – *Arduino, LabVIEW* May 2013 – Dec 2013
- Developed a system using a 3-axis accelerometer and NI LabVIEW with Fuzzy Logic to enhance motorcycle safety.
- Tested the system prototype with real-world data, dynamically controlled vehicle lights, and provided parameters for advanced safety actuations like ABS.