

Adam Maus

<https://adammaus.com>

INTRODUCTION

I love developing innovative technology that drives scientific research forward and helps others. I am open to opportunities that align with my skills in software development and research.

RECENT WORK EXPERIENCE

School of Medicine and Public Health (SMPH) at University of Wisconsin – Madison | <https://iit.med.wisc.edu/> | March 2025 – Present | Fully Remote

Software Developer IV (Senior Programmer): Full Time

- Collaborate with doctors and another developer to maintain and improve a research system and website used by doctors, radiologists, and researchers for vein imaging studies. This system is over 15 years old and currently built using Ruby (v2), Rails (v5), and React (v16).
- Developed Docker and Docker Compose scripts to run legacy Rails and React applications.
- Wrote unit and integration tests for a REDCap External Module with over 3,000 lines of code.
- Built Gitlab CI pipelines to run PHP linting, Javascript linting, and PHP unit tests on code for a REDCap External Module.
- Raised test coverage on an application with over 10,000 lines of code from 13% to over 85%
- After enabling Static Analysis Security Testing on one of our Rails and React applications, addressed over 60 vulnerabilities in legacy code.
- Participated in workgroups to design new technical stacks and infrastructure that will be deployed to SMPH's over 300 applications and 30+ developers as part of an ongoing reorganization to eliminate technical debt. As part of this effort, met with other remote developer teams, researched and analyzed existing frameworks, and provided recommendations for front-end and full-stack frameworks.
- Perform upgrades to a microservices system (JupyterHub, Airflow, Postgres, etc.) in Kubernetes built to help users across the UW securely work with personal health information located in a UW-Madison data lake.

Center for Health Enhancement Systems Studies (CHESS) at University of Wisconsin – Madison | <https://chess.wisc.edu> | 2007 – Present | Various roles | Fully Remote since 2020

Consultant: March 2025-Present – Less than 5 hours a month

- Provide technical support for ongoing projects including maintaining code, maintaining Linux servers, and giving recommendations on future development for CHESS and The Tick App project with the Midwest Center of Excellence for Vector-Borne Disease.

Lead Software Developer: 2015-March 2025 – Full Time

Lead Development Team

- Led team of full-time and student software developers by coordinating project development and maintenance, reviewing code, triaging issues, and providing feedback to help improve technical and interpersonal skills. Have led 12 developers.

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- Participated in all phases of the project lifecycle, including planning, development, maintenance, and archiving with multi-disciplinary teams from other departments at UW-Madison, community and government organizations, and researchers across the country.
 - Worked with stakeholders on grant writing, helped with focus groups, developed business requirements, translated requirements into functional specifications, and turned mockups and designs into code.
 - Analyzed existing infrastructure and recommended technical solutions.
 - Developed code or delegated tasks to meet project objectives, supported ongoing projects, performed upgrades, exported data for analysis, and managed archives.
- Developed and documented our procedures for developer onboarding, security best practices, collecting app usage data, writing technical documentation, and finding opportunities for professional development for other developers.
- Worked with technical team to create best practices for Software Development Life Cycle by formalizing our processes around handling issues, code reviews, automated testing, quality assurance, and app deployment.
- Standardized local development environments for developers using Vagrant and, later, researched, developed, and introduced Docker containers with a LAMP stack and subnetwork to the team.
- Maintained and improved technical documentation including troubleshooting server or build issues, setting up and maintaining servers, onboarding developers, etc.
- Mentored an undergraduate student as a part of UW-Madison Undergraduate Research Scholars program in the development of a Javascript application for doctors and nurses to visualize patient health data using user-centered design principles.

Develop and Support Projects

- Developed and supported mobile apps and websites for randomized clinical trials with thousands of participants including older adults, patients in recovery for substance misuse, patients undergoing cancer treatment, substance use treatment organizations, and others. At one point, led work on 11 active studies with over 28,000 users and 4 junior developers.
- Built a custom modular PHP 7 and 8 content management framework named Labcoat to easily move functionality, such as discussion groups and study administration interfaces, between projects in 2017. Since then, it has served as the foundation for 15 projects.
 - Applied for a grant and won funding for development of this framework in 2017.
- Provided support for projects by working with study participants, project staff, researchers, and other developers to troubleshoot issues. Efficiently addressed problems, often while juggling existing priorities, then documented and found ways to prevent them in the future.

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- Primary contact person for vendors and UW-Madison's IT services to maintain technical infrastructure and services such as servers, app store apps, Gitlab code repositories, security dashboards, etc.
- Worked with statisticians to prepare and disseminate research data for publication from a range of CHESS systems and SQL databases, mostly using SQL queries and Python scripts.
- Researched and introduced a cross-platform frontend code library based on Apache Cordova, Ionic 3, Angular, and Typescript that has been used in 14 projects since 2019. In 2023, I completely rewrote and restructured the library in Ionic 8 to make app development faster, more efficient, less error prone, and easier to maintain.
- Primary developer and maintainer for an Android app built with UW-Madison Psychology department researchers to collect surveys, text messages, call data, and locations when people misuse opioids with an aim to predict when people will relapse based on who they are talking to, the kind of language they use, and their location.
- Worked on an interdisciplinary team of statisticians, managers, and researchers to improve research data collection, management, and analysis practices at CHESS.
- Maintained and improved legacy code from the 1990s that relied on ASP and VBScript.

Collaborate and Coordinate

- Collaborated with project staff, researchers, and IT staff when planning, developing, and maintaining projects. This involved meeting with a variety of stakeholders, creating business requirements, translating requirements into technical specifications, analyzing existing or designing new infrastructure, offering recommendations, and delegating or developing code to achieve project objectives.
- Have worked with the Midwest Center of Excellence for Vector-Borne Disease and other researchers across the United States since 2018 to maintain The Tick App, a citizen science project for tick monitoring and prevention. In 2018, built the first version of the Android and iOS native apps in 5 months. In 2019, rewrote this app using the cross-platform Ionic framework in 4 months. Since then, have trained multiple developers to help maintain the app. As of 2026, The Tick App has been used by over 32,000 people across North America.
 - In 2023, developed Python code to integrate with a deep learning AI model and designed interfaces to help researchers identify ticks in pictures submitted by users.
 - In 2024, led the effort to present our development of the tick identification system at the IT Professionals Conference at UW-Madison. Also rebuilt the original algorithm using TensorFlow with Tick App and iNaturalist data but didn't have the budget to fully implement the new model.
- Worked with researchers in UW-Madison Computer Sciences department to develop and maintain the Javascript and Node.js code and infrastructure (Linux servers, AWS, and Google Cloud Platform) for Google Home and Amazon Echo smart speaker skills designed to help older adult study participants improve their chronic pain and functional movement.

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- Worked with Wisconsin Department of Health Services and researchers across UW-Madison to develop a social networking app to support people and fight misinformation during the COVID-19 pandemic and launched it within 6 weeks.
- In 2015, worked with UW-Madison's Industrial & Systems Engineering researchers to collect and analyze OBD2 (on-board diagnostic) device data in the cars of older adults and display it in an accessible and easy-to-understand online "Trip Diary" to mitigate risky driving behavior. As part of this, used Google Maps, MapQuest, and WiDOT's 511 Real Time Traffic Map APIs for a mapping interface to show trips and the safest route to a destination.
- Worked with graduate students in UW-Madison's School of Journalism to integrate a machine learning algorithm based on LIWC and random decision forests into an app to flag messages in an online Opioid Use support group as threatening or not to recovery.
- Assisted in multiple focus groups with medical staff and older adults in the design of ElderTree, a system to help reduce isolation and help older adults age in place and eventually spawned three additional projects.
- Maintained the Center's Google Play Store and Apple App Store accounts. Handled app deployments, addressed reviews, and provided technical support for mobile app users.

Research New Technologies

- Stayed current with trends in software development and researched how new technologies could improve the efficiency and effectiveness of CHESS technologies. For example, introducing our cross-platform Ionic framework frontend library, Labcoat, Docker, etc.
- In 2016, developed a Backbone.js single-page application dashboard for researchers to stay connected with study participants and monitor their opioid addiction recovery through data visualizations. Worked closely with staff to identify issues they had and found ways to make administration easier using user-centered design principles. This dashboard played a role in every project afterward in varying capacities.
- Wrote the first draft of a winning proposal for the Ohio Opioid Technology Challenge in the summer of 2018 for work related to A-CHESS, a smartphone-based system for people in recovery for opioid use disorder. Traveled with CHESS Director and IT Director to Ohio to meet with counselors, patients, and recovery center staff as part of this effort.
- Developed the idea for using a virtual counselor for people in recovery for opioid use disorder and led a team to win the first round of the Foxconn Smart Cities - Smart Futures competition in 2018 based on that idea.
- Published a research journal article in 2023 about the cross-platform approach I developed for collecting CHESS' website and app usage data.
- Led a study about how older adults perceive recommender systems and presented the work at the Intelligent User Interfaces conference in 2015.

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- Built a system for providing suggestions to older adults based on how they answered weekly surveys based on the Western Electric Rules for Statistical Process Control.
- Explored using Azure, ChatGPT, and RAGs to embed CHES's modular PHP framework and have it write boilerplate code. This didn't work well but the research I did and code I wrote helped in another project designed for counselors learning Motivation Interviewing.

Server Administration and Security

- Set up and maintained Ubuntu Linux and Windows servers, including one that ran CHES code from 1999! This included provisioning, vetting and applying patches, mitigating security vulnerabilities, scaling resources, and archiving legacy projects. At one time, I actively maintained 21 servers.
- Maintained CHES's self-hosted Gitlab server for 7 years and then migrated projects to UW-Madison hosted Gitlab in 2023 that required writing Python scripts to move hundreds of issues and merge requests for 93 projects using the Gitlab API.
- Assisted CHES Data Security officer and IT Director in two HIPAA assessments by the UW-Madison Office of Cybersecurity and acted as primary contact person when assessing security and disaster recovery in CHES apps. Most CHES apps store personal health information and security is always a priority in our code and underlying infrastructure.
- Built, optimized, scaled, migrated, and archived relational databases used at CHES.
- Maintained and enhanced Gitlab CI/CD pipelines using Docker and shell scripts for building, testing, and deploying projects to different servers behind and in front of UW firewalls.

Miscellaneous

- Nominated in 2023 and 2024 for the UW-Madison Martha Casey Award for Dedication to Excellence. This award recognizes "unsung heroes" who perform their jobs outstandingly and keep things running smoothly. These individuals are on the front lines of day-to-day work and lead from within the organization.

Software Developer: 2010-2015 – Full Time

- Led development of websites and assisted with Android and iOS mobile app development.
- Developed interface for researchers to send out any number of ecological momentary assessments generated randomly throughout the day to track alcoholism recovery.
- Worked with external collaborators to refactor the website for the nationwide Addiction Technology Transfer Center and converted legacy VB.net code for reporting counselor's training certifications to a Moodle plugin, a PHP LMS framework.
- Refactored existing code from early 2000s to use modern software development coding standards, such as object-oriented programming, in VB.Net and C#.
- Assisted with Windows server administration.

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Intern: 2007-2010 – Part Time

- Assisted lead web designer with website content updates, HTML and CSS updates, optimizing media for websites, and building HTML forms with and without Javascript.
- Assisted lead software developer with ASP.net code updates including the development of a basic keyword search engine.
- Primary developer and maintainer of a search engine that tracked success stories, case studies, and projects in substance use treatment that was finally retired in 2025.
- Wrote MS SQL Server queries and MS SQL stored procedures.
- Handled basic website technical issues as they arose.

Wisconsin Geological and Natural History Survey (WGNHS) at University of Wisconsin – Madison | <https://wgnhs.wisc.edu> | Nov 2024 – May 2025 | Fully Remote

Interim Web Developer: Part Time – while also working at SMPH and CHESS

- Without much support, learned and documented the existing CKAN application and Docker Swarm infrastructure used to display research publications and data going back over 150 years. Had no experience with CKAN or Docker Swarm prior to this position.
- Trained other developers to take over updates for CKAN and infrastructure. With my documentation, a newly hired Developer started making updates within 2 days.
- Deployed publications and minted new publication DOIs with CrossRef using legacy documentation that required me to research and make update.

PAST WORK EXPERIENCE

Ai Spork LLC | Owner | 2012-2024 – Part Time

- Developed and maintained custom Wordpress plugin to recommend blog articles using a K-nearest neighbors algorithm.
- Consulted for MediaPass.com, advised on development of a data mining system for promoting customer content, and enhanced the usability of their Wordpress plugin.

Send Me Specials | Chief Information Officer | 2010-2011 – Part Time

- Wrote an Android app to digest text messages and search a MySQL database to help users find deals in the Madison area.
- Worked with graphic designer to develop and maintain custom PHP website.

Undergraduate Research Scholars Program at University of Wisconsin – Madison | <https://urs.ls.wisc.edu/> | Research Fellow | 2007-2008 – Part Time

- Led two year-long weekly seminars for 20-30 undergraduate researchers with a co-fellow through topics related to research and how to be better researchers.

Lifeguard at YMCA and Slinger Parks & Recreation Department – Part Time

FREELANCE AND PERSONAL PROJECTS

- Personal Blogs and Server: Maintain and enhance posts originally written in Wordpress and, in 2025, converted them to Jekyll. Also, maintain personal server that was originally used the LAMP stack but, in 2025, converted them to Docker containers.
- Maus Jewelers (2005-2021): Built and maintained a custom PHP website for my parents' jewelry store. Implemented designs by graphic designer and used Python to update online database with images and jewelry from store's on-premise database.
- Marceco LTD (2011): Built a PHP interface and custom Android app to send text blasts.
- Rhythm and Booms Run (2010-2011): Built a race signup process using PHP, HTML, and Javascript to integrate with the Paypal API.
- Capital City Cookies (2011) and White Lotus Tea Time (2008): Built search engine and custom shopping carts using PHP, HTML, and Javascript to integrate with the Paypal API.
- Cayman Beachfront Condo Rental (2012): Built and maintained Wordpress site for information about rentals.

SELECTED RESEARCH EXPERIENCE AND PUBLICATIONS

- Is that a Tick? Engineering a human-in-the-loop tick identification system. **A. Maus** and S. Nowak (2024 UW-Madison IT Professionals Conference, May 2024)
- Service-Action-Objects: A cross-platform method for logging interactions in digital systems. **A. Maus**. (ACM Software Engineering Notes, April 2023)
- Polite or Direct? Conversation Design of a Smart Display for Older Adults Based on Politeness Theory. Y. Hu, Y. Qu, **A. Maus**, B. Mutlu. (Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems, April 2022)
- Using trip diaries to mitigate route risk and risky driving behavior among older drivers. R.P. Payyanadan, **A. Maus**, F.A. Sanchez, J.D. Lee, L. Miozzi, A. Abera, J. Melvin, X. Wang (Accident Analysis & Prevention, September 2017)
- Using the NIATx Model to Implement User-Centered Design of Technology for Older Adults. D.H. Gustafson Jr., **A. Maus**, J. Judkins, S. Dinauer, A. Isham, R. Johnson, G. Landucci, A.K. Atwood (JMIR Human Factors, January 2016)
- Surveying Older Adults About a Recommender System for a Digital Library. **A. Maus** and A.K. Atwood (20th International Conference on Intelligent User Interfaces, March 2015)
- Evaluating Lyapunov exponent spectra with neural networks. **A. Maus** and J.C. Sprott (Chaos, Solitons & Fractals, June 2013)
- Neural network method for determining embedding dimension for time-delayed systems. **A. Maus** and J.C. Sprott (Communications in Nonlinear Science and Numerical Simulation, August 2011)
- Presentations by undergraduate researchers I mentored:

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- "Connecting Older Adults and Healthcare Providers Through a Social Networking Website" by Junho Oh presented at Undergraduate Symposium 2016, UW-Madison
- "Assessing Alcohol Abuse Statistics Through Data Analysis of Social Networking Sites" by Jesse Gomer presented at Undergraduate Symposium 2012, UW-Madison
- Other publications available at:
 - https://researchgate.net/profile/Adam_Maus
 - <https://orcid.org/0000-0002-5896-5230>

SKILLS AND SPECIALITIES

- **Mobile App and Website Development:** Python, PHP, Node.js, REST APIs and API design, Single Page Applications, NPM, Typescript, SASS, Javascript, Angular, Ruby on Rails, React, jQuery, PHPUnit, Java, Android development, Objective-C, Swift, iOS development, Apache Cordova for App development, Ionic Framework, PHP Composer Dependency Manager, .NET framework, C#, VB.net
- **Server, Database, and Cloud Services Management:** MySQL, SQL Server, GraphQL, Linux, Windows Server, Apache server, Docker and Docker Swarm, AWS, Azure, Traefik, Kubernetes experience
- **Continuous Integration / Continuous Deployment:** Git, Gitlab, GitHub, Shell scripts, DevOps
- **Software Development Practices:** User Experience Design, Refactoring Code, Documentation, Unit and Integration Testing, Clean Code methodology, Software designs patterns like MVC

VOLUNTEERING

- **Friends of Military Ridge State Trail:** Secretary and website maintainer. Regularly attend monthly meetings and record meeting minutes. Work with members and partner organizations to set up and disseminate information about events along the trail. Help with trail maintenance and conservation projects. Tend two of the nine kiosks along the 40-mile long trail. Maintain the website by updating events, the calendar, and other content. Developed a way for the group to sign up members and receive donations online. Created an online archive of past meeting minutes going back decades. Worked with the Southern Wisconsin Bird Alliance (SWBA) to set up and monitor an American Kestrel nestbox on the trail as part of SWBA's monitoring program.
- **Wisconsin Master Naturalist:** Certified in August 2025 and have participated in citizen science, stewardship, and natural history education. In less than eight months after training, recorded over 100 hours of volunteer work and 13 hours of advanced training. As part of the advanced training in 2026, will be attending a workshop on bird banding.
- **Southern Wisconsin Bird Alliance:** Member of the Bird Collision Corps since Spring 2025, a group of volunteers that go weekly during migrations to track and record bird window collisions. Also monitoring a Kestrel nestbox on the Military Ridge Trail in 2026.

EDUCATION

University of Wisconsin - Madison

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Masters in Computer Sciences (2011 - 2012)

Bachelor of Science in Computer Sciences (2005 - 2009)

OTHER INTERESTS

Endurance Sports: Completed 7 marathon races, a Half-Ironman triathlon, a 50k running race, and a 100-mile bike ride. **Writing:** Finalist at 2020 Austin Film Festival for a full-length holiday romantic screenplay named "Holiday on the Hills" written with my brother. **Other:** Cooking, Native plant gardening for birds, Reading (mostly sci-fi).