

Adam Maus

<https://adammaus.com>

INTRODUCTION

I am passionate about developing innovative software and technology to help others. I am open to opportunities that align with my skills in software development and research.

WORK EXPERIENCE

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

Lead Software Developer: 2015 – Present

Lead Development Team

- Lead 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 other developers.
- Participate in all phases of the project lifecycle, including planning, development, maintenance, and archiving projects with multi-disciplinary teams consisting of members from a variety of departments at UW-Madison, community and government organizations, and researchers across the country.
 - Work with stakeholders on grant writing, help with focus groups, develop business requirements, and translate requirements into technical specifications.
 - Analyze existing infrastructure and recommend technical solutions.
 - Develop code or delegate tasks to meet project objectives, support ongoing projects, perform upgrades, pull data for analysis, and manage code and 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.
- Worked with my 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 CHESS developers using Vagrant and, later, researched, developed, and introduced Docker containers with a LAMP stack and subnetwork to the team.
- 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 see patient health data using user-centered design principles.

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Develop and Support Projects

- Develop and support 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 serving over 28,000 users with 4 junior developers.
- Built and introduced a custom modular PHP framework named Labcoat to easily move functionality, such as discussion groups and study administration interfaces, between CHESS projects, in 2017. Since then, it has served as the foundation for 15 projects. Applied for and won funding for development of this framework from a large software company in Madison area in 2017.
- Provide technical support for projects by working with study participants, project staff, researchers, and other developers to troubleshoot and resolve issues. Efficiently address problems as they arise, often while juggling existing priorities, then take time to document and find ways to prevent them in the future.
- 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.
- Work with statisticians to prepare and disseminate data for publication from a range of CHESS systems and SQL databases.
- Completely rewrote the cross-platform frontend code library that used Apache Cordova, Ionic 3, Angular, and Typescript developed over 5 years to 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, since 2019, 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 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.
- Maintain and improve legacy code from the 1990s that rely on ASP and VBScript.

Collaborate and Coordinate

- Collaborate with project staff, researchers, and IT staff when planning, developing, and maintaining projects. This involves 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.

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- Work with researchers in UW-Madison Computer Sciences department to develop and maintain the code and infrastructure (Linux servers, AWS, and Google Cloud Platform) for Google Home and Alexa smart speaker custom skills designed to help Older Adult study participants improve their Chronic Pain and Functional Movement.
- Have worked with the Midwest Center of Excellence in Vector-Borne diseases and researchers across the United States to maintain The Tick App, a citizen science project for tick monitoring and prevention since 2018. In 2018, I built the first versions of the Android and iOS native apps in 5 months. In 2019, I rewrote this app using the cross-platform Ionic framework in 4 months. Since then, I've trained multiple developers to help maintain the app. Today, The Tick App has been used by over 28,000 people across North America.
- 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 stay-at-home order and launched it within 6 weeks.
- Worked with researchers in UW-Madison's Industrial & Systems Engineering to collect and analyze and display data taken from OBD2 devices in the cars of Older Adults to older adults in an accessible and easy-to-understand online "Trip Diary" to help mitigate risky driving behavior. As part of this project, used Google Maps APIs to develop a mapping interface to determine 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 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.

Research New Technologies

- Stay current with trends in software development and research how new technologies could improve the efficiency and effectiveness of CHESS technologies. For example, introducing Labcoat, our cross-platform Ionic framework frontend library, Docker, etc.
- In 2023, I designed and developed an interface that integrates with a deep learning AI model to help researchers identify ticks in pictures submitted by users for The Tick App. In 2024, I led the effort to present our development of the tick identification system at the IT Professionals Conference at UW-Madison.
- Created a JavaScript application for researchers to stay connected with study participants and monitor their opioid addiction recovery through data visualizations of app usage. Using principles of User Experience Design, I worked closely with study staff to identify issues they had and found ways to make study administration easier. This application plays a role in all current projects in varying capacities.

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- 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 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.
- Explored using Azure, ChatGPT, and RAGs to embed CHESS' modular PHP framework and have ChatGPT write boilerplate code. This didn't work well but the research I did and code I wrote helped in another project designed to counselors learn Motivation Interviewing.

Server Administration and Security

- Set up and actively maintain 11 Ubuntu Linux and Windows servers, one that still runs CHESS code from 1999! This includes provisioning, vetting and applying patches, mitigating security vulnerabilities, scaling resources, and archiving legacy projects. At one time, I actively maintained 21 servers.
- Maintained CHESS' self-hosted Gitlab server for seven years and 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 CHESS Data Security officer and IT Director in two HIPAA assessments by the UW-Madison Office of Cybersecurity and act as primary contact person when assessing security and disaster recovery in CHESS apps. Most CHESS apps store personal health information and security is always a priority in our code and underlying infrastructure.
- Maintain and enhance 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 assigned 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

- Led development of websites and assisted with Android and iOS mobile app development.

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- Developed interface for researchers to randomly send out any number of ecological momentary assessments generated randomly through the day to track alcoholism recovery on a mobile app.
- 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.

Intern: 2007 – 2010

- 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 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 is still in use today.
- Wrote SQL Server queries and SQL stored procedures.
- Handled basic website technical issues as they arose.

Ai Spork LLC | Owner | 2012 – 2024

- 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

- 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

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

- 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 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 IT Professionals Conference, May 2024)
- Service-Action-Objects: A cross-platform method for logging interactions in digital systems. **A. Maus**. (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. Miossi, 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)

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- Presentations by undergraduate researchers I mentored:
 - "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

- **App and Website Development:** PHP, .NET framework, C#, VB.net, HTML, CSS, SCSS, Javascript, Typescript, Node.js, Angular, jQuery, PHPUnit, Java, Android development, Objective-C, Swift, iOS development, Python, Apache Cordova for Cross Platform App development, Ionic Frontend Framework, Wordpress Plugin Development, REST APIs and API design, Single Page Web Applications, NPM and Composer Dependency Managers
- **Server, Database, and Cloud Services Management:** MySQL, Linux, Windows Server, Apache HTTP server, SQL Server, AWS, Azure, VMWare Aria and vSphere for server management
- **Continuous Integration / Continuous Deployment:** Git, Docker, Gitlab, Shell scripts, DevOps
- **Software Development Practices:** User Experience Design, Refactoring Code, Documentation, Unit and Integration Testing, Clean Code methodology, Project Coordination with Gitlab, OWASP secure coding guidelines, Software designs patterns like MVC

EDUCATION

University of Wisconsin - Madison

Masters in Computer Sciences (2011 - 2012)

Bachelor of Science in Computer Sciences (2005 - 2009)

OTHER INTERESTS

Endurance Sports: Completed seven 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. **Active member of Friends of Military Ridge State Trail since 2020:** Help with trail maintenance projects, tend kiosks, maintain their website and developed a way for the group to sign up members and receive donations online. **Other:** Cooking, Native landscaping for birds, Reading hard science fiction.