JOHN CHE

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EDUCATION

University of Wisconsin-Madison
Master of Science, Computer Sciences
Capstone: Independent qualitative research study on passkey adoption barriers (manuscript available upon request)
Relevant Coursework: Human-Centered Security & Privacy (CS 839), Machine Learning (CS 760), Security & Privacy in Data Science (CS 763), Ethics of AI (PHILOS 543), Big Data Systems (CS 744), ETL & Data Pipelines (CS 774)
Bachelor of Science, Computer Engineering
Los Alamos National Laboratory Power Grid Science Winter School (2021)
Undergraduate Research Scholars Program (2019-2020)

MANUSCRIPTS

In Preparation
"Bootstrap Friction Points in Passwordless Authentication: A Qualitative Study of Passkey Adoption Barriers"
J. Che | Target: CHI 2026 or USENIX Security
- Introduces novel taxonomy of "bootstrap friction points" identified through 12 participant interviews and cross-platform pilot study
- Research design featured IRB-approved protocol, thematic coding framework, and systematic analysis

"Training Multilingual Transformer Models in Resource-Constrained Environments"
J. Che, A. Priyadarshi, and S. Kandasamy | Presented at UW-Madison Graduate Research Symposium 2024
- Achieved 15.3% BLEU improvement and 75% training time reduction versus A100 baseline using distributed data parallelism
- Demonstrated cost-effective transformer training at one-seventh the hardware cost

Archived Projects
"Extracting Structured Skills from Unstructured Job Listings Using Transfer Learning"
"Ethical Duty and Privacy Protection in AI Systems: A Framework for Responsible Data Stewardship"
"Neural Network Architectures for Recommendation Systems: A Comparative Analysis"

RESEARCH EXPERIENCE

Graduate Researcher | University of Wisconsin–Madison | 2023–2025
Passkey Adoption Barriers Qualitative Study (with Prof. Rahul Chatterjee)
- Designed and executed end-to-end qualitative research: IRB protocol → pilot study → main study (12 interviews) → thematic analysis
- **Key Finding:** Discovered platform-level "bootstrap friction" as primary adoption barrier, challenging prior literature's focus on UI complexity
- **Research Innovation:** Pilot study across 3 platforms and 2 device types revealed extreme setup time variations (3-35 minutes) and platform incompatibility
- **Outcome:** Manuscript introducing novel taxonomy of adoption barriers, including nomenclature inconsistencies and privacy concerns

Resource-Constrained Multilingual Model Training (with Prof. Shivaram Venkataraman)
- Identified hardware access inequality as overlooked constraint in distributed systems and NLP scalability literature
- **Technical Contribution:** Implemented PyTorch DistributedDataParallel pipeline achieving superior performance-per-dollar versus standard baselines
- **Research Impact:** Demonstrated accessible high-quality NLP training for under-resourced institutions using low-cost four-node GPU cluster
- **Results:** 15.3% BLEU score improvement on 174,000 multilingual examples across 19 NLP tasks with 75% reduction in training time

Research Fellow | Office of Information Security, Universities of Wisconsin System Administration | 2024–2025
- Conducted applied systems research on security data pipelines serving 165,000+ identities across 13 campuses
- **Research Contribution:** Experimental evaluation of Elasticsearch time-series indexing strategies; A/B testing showed 30% reduction in threat-detection-to-mitigation latency
- **Technical Implementation:** Engineered real-time event-streaming infrastructure (.NET, MS SQL, Elasticsearch) and validated system performance using load modeling
- **Policy Impact:** Delivered research briefings to administrators, CISOs, and state-level policymakers on digital

security and privacy tradeoffs

Undergraduate Researcher | Wisconsin Power Systems Lab, Department of ECE | 2020–2021

- Applied statistical methods and data analytics to large-scale power grid infrastructure datasets
- Gained computational modeling training at Los Alamos National Laboratory Power Grid Science Winter School

Undergraduate Research Scholar (Research Assistant) | Department of Second Language Acquisition | 2019–2020

- Gained foundational training in IRB protocols, qualitative methodology, and research data management
- Supported research study on language learning patterns through thematic coding of interview data

TEACHING EXPERIENCE

Teaching Assistant, Software Engineering (CS 200) | UW-Madison | 2023–2024

- Collaborated with faculty and 9 graduate TAs to design comprehensive software engineering curriculum for 800+ students
- Designed 4 original programming projects addressing AI-assisted coding challenges; projects integrated into departmental curriculum
- Led weekly programming labs for 30 students; held 7 hours/week office hours providing technical mentorship
- Received 93% student satisfaction rating for "valuable and reliable support"

Math Tutor & Peer Mentor | University Housing, UW-Madison | Aug. 2021 - May 2023

Supervisor: Dr. Scott Seyforth | Students Served: 500+ across 2 years

- Led one-on-one and group tutoring sessions for hundreds of undergraduate students in mathematics (Algebra, Calculus I, II, III, Linear Algebra I)
- Managed group tutoring sessions with 25+ students; organized students by course sections to facilitate collaborative learning
- Achieved highest student satisfaction ratings among campus undergraduate tutors for explanation clarity and approachability
- Trained and mentored incoming tutors on pedagogical techniques and group facilitation strategies

PROFESSIONAL EXPERIENCE

Data Services Specialist-Health Informatics | Wisconsin Dept. of Health Services | 2021–2022

- Led development of HIPAA-compliant data platform for mental health clinic oversight (3,000+ clinics, 70,000+ patients)
- Conducted 15 stakeholder interviews to understand clinical workflows; designed database architecture and data governance framework
- Developed quality control metrics improving data reliability by 25-27%; delivered $30,000 operational cost savings

Data Engineering Intern | Yapstone Inc. | Summer 2022

- Developed ETL pipeline processing 50,000 business contracts; implemented validation algorithms reducing manual review by 75%
- Integrated Snowflake data warehouse with Looker visualization platform for real-time business intelligence

HONORS & AWARDS

UWSA Fellowship (2024-2025) – Competitive statewide fellowship (1 of 7 recipients) supporting graduate research and policy engagement in higher education

King-Morgridge Scholarship (2019-2023) – 1 of 6 recipients of full-tuition merit scholarship for low-income students from developing countries

Dean's Honor List – 7 of 8 semesters (Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Fall 2022, Spring 2023)

ASCAM Leadership Excellence Award (2023) – Recognition for organizational leadership and community engagement

RESEARCH SEMINARS & READING GROUPS

Madison Security & Privacy Seminar Series | UW-Madison | 2023–2025

Weekly research talks on privacy-preserving computation, systems security, and applied cryptography

AI Safety Fundamentals Seminar | UW-Madison | 2023–2025

Discussions on research papers focused on AI alignment, reinforcement learning, and interpretability

SERVICE & LEADERSHIP

Student Advisory Board Member, Department of Computer Science, UW-Madison | 2024–Present
One of 5 graduate student representatives advising department chair on strategic decisions; contributed to planning of new $267M Computer Sciences building
Secretary, Association of Cameroonians in Madison (ASCAM) | 2023–Present
Elected officer coordinating organizational programming and cultural events for community engagement
Member, Wisconsin AI Safety Initiative | 2023–2024
Curated vetted catalog of trustworthy machine learning resources and research materials
Member, National Society of Black Engineers (NSBE) | 2019–Present