AUSTIN MAC

✉ austinrmac@gmail.com
📞 (925) 918-5052
🖥 austinmac.org

RESEARCH EXPERIENCE

Human-AI Integration Lab (UCSB) — Mar 2022 - Jul 2023
Researcher — *Santa Barbara, CA*

- Built Sonic Storyteller, an AR storytelling application that parses story text and emits spatial sound effects based on verbal cues during storytelling (Unity, CSharp, Python, GPT-3, AirPods)
- Conducted a pilot user study with Sonic Storyteller to measure effects of spatial audio on immersiveness and cognitive load, finding increased immersion from spatial audio
- Work presented at UIST 2023: `https://dl.acm.org/doi/10.1145/3586182.3616642`

Wu Lab (Columbia University) — Mar 2022 - Oct 2022
Research Assistant — *New York City, NY*

- Extended the display capabilities of Precision Interfaces, a semi-automatic data analytics interface generator, allowing users to interact with geographical GeoJSON data (Python, JavaScript, Vega-Lite)
- Implemented a parameterized SQL grammar for Precision Interfaces, enabling it to accept natural language as input
- Work presented at SIGMOD 2022 & IEEE NLVIZ 2022: `https://arxiv.org/abs/2209.08834`

Media Skill Research Lab (UCSB) — May 2021 - Jun 2022
Research Assistant — *Santa Barbara, CA*

- Built EMPTI, a human factors research testbed, which mimicks an email client with predictive text (Express, Node.js, GPT-3, PostgreSQL, Heroku, Docker)
- Used EMPTI to measure the relationship between technological affordances (interactivity, credibility, familiarity, identification) and Human-AI seamlessness in 400 participants
- Work presented at ICA 2024: `https://austinmac.org/res/Synergy.pdf`
- Repo: `https://github.com/austinmacmath/EMPTI/wiki`

INDUSTRY EXPERIENCE

Roblox — Aug 2022 - Present
Software Engineer — *San Mateo, CA*

- Building a service mesh to reduce network hops, consolidate 4 legacy network proxies, and connect over 1000 microservices (Go, Nomad)
- Maintaining and updating an internal network proxy to support over 6 million requests/second (Traefik)

Roblox — Jun 2021 - Sep 2021
Software Engineering Intern — *San Mateo, CA*

- Built a CLI & microservice to restart Nomad jobs 80% faster (Go, Nomad)
- Added features to a Nomad node problem detector to programatically build Docker images, decreasing build times by 20% (Go, Docker)

Citadel — Mar 2021 - Jun 2021
Software Engineering Intern — *Chicago, IL*

- Deployed an SNMP trap receiver on Kubernetes, increasing error detection rate by 15% (Docker, Bash, Python, Splunk, Vault, Kerberos, Pagerduty)
- Built a data collector to publish stored procedure outputs to Kafka and consume outputs from Kafka to Clickhouse (Python)
- Created command line tool to suppress PagerDuty alerts 50% faster (Python)

Tesla   Aug 2020 - Dec 2020
Data Analytics Intern   *Fremont, CA*

• Built a data pipeline to predict job efficiency from weather (Python, Pandas, SciKit-Learn, SQLAlchemy, SQL Server, MySQL, Ansible)
• Built dashboards to flag unusual install jobs, plan capacity, and visualize office jurisdiction, which increased utilization by 20% (SQL Server, Tableau)
• Automated the crew capacity modeling process, improving modeling time by 50% (Python, Excel)

Roblox   Jun 2020 - Aug 2020
Software Engineering Intern   *San Mateo, CA*

• Built an open source service to track resource utilization of container orchestration servers, reducing resource waste by 30% (Docker, Go, Grafana, SQL Server, Nomad)
• Open source repo: `https://github.com/Roblox/rblx_nurd`

EDUCATION

University of California, Santa Barbara   Sep 2018 - Jun 2022
Major: Computer Science, Minor: Statistics   *GPA: 3.81/4.00 with honors*

PUBLICATIONS

• Hamilton, K. A., Wang, L. H., Delaney, K., & **Mac, A.** (2024, June 20-24). *Evaluating Manipulations for Creating Perceived Human-AI Seamlessness* [Paper presentation]. 74th Annual International Communication Association Conference, Gold Coast, Australia.
• **Mac, A.**, & Sra, M. (2023, October). Sonic Storyteller: Augmenting Oral Storytelling with Spatial Sound Effects. In *Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology* (pp. 1-3).
• Chen, Y., Li, R., **Mac, A.**, Xie, T., Yu, T., & Wu, E. (2022, October 16). *NL2INTERFACE: Interactive Visualization Interface Generation from Natural Language Queries.* [In person presentation] IEEE NLVIZ 2022.
• **Mac, A.** (2019). Don't Get Stuck. *Starting Lines, 18(41)*, 141-143.

VOLUNTEERING

UCSB Running Club - President
UCSB Running Club is an entirely student run organization with over 300 registered members. Our goal is to provide an inclusive, welcoming community for runners of all levels. Organized practice schedules, coordinated race carpools, applied for race registration discounts, purchased uniforms, managed/delegated tasks.

SKILLS

Languages	C++, Python, Go, SQL, R, HTML, CSS
Tools	Unity, Blender, Figma, Tableau, GPT, Git, Docker, Nomad