Sebastian S. Rodriguez, Ph.D.

Software and XR Engineer

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EXPERIENCE

Amazon – Software Development Engineer   Redmond, WA | January 2024 – Present

Meta – Analytics Engineer   Menlo Park, CA | August 2022 – July 2023

- Partnered with cross-functional teams in the Infrastructure Privacy organization to build company-wide internal tooling in **Hack/PHP**, facilitating responsible data management practices and enhancing workflows for over 2,000 employees.
- Developed predictive analytics workflows in **Python** to process petabytes of internal assets and user privacy data, identifying and eliminating 15 years' worth of GDPR non-compliant assets.
- Implemented a reporting pipeline in **Python** to aggregate internal approvals for new features across all Meta's products using sensitive user data, saving approx. 300,000 yearly work-hours across the organization.

Computer Science at Illinois – Lead Software Developer   Urbana, IL | August 2021 – August 2022

- Managed 8 developers to maintain a cross-platform IoT sandbox simulation in **Unity** for education; responsibilities included feature roadmapping, architecting game systems, AI logic implementation, building engine tooling, and establishing best practices.
- Led a refactoring initiative of the codebase and assets by replacing or removing 65% of outdated or unused components, resulting in a 90% reduction in build sizes and a 48% boost in user satisfaction with load times.
- Introduced DevOps practices using **GitHub Actions** and **GameCI** to implement CI/CD pipelines, achieving a 37% reduction in build times and a 95% decrease in bugs reaching public builds.

Computer Science at Illinois – Graduate Researcher   Urbana, IL | August 2016 – August 2022

- Led a research team of 4 to prototype and deploy various desktop, VR, and AR interactive simulations in **Unity** to research human-AI trust and engineered backend systems using **Python** and **AWS** to store and analyze data from more than 2400 participants.
- Partnered with Microsoft to create and open source RemoteLab, a **Unity** SDK that eases development of networked **VR/AR** research for those affected by COVID-19, allowing remote proctoring, state synchronization, event-based activity logging, and data transfer.
- Mentored over 10 students on engineering and career development, guiding them to industry roles and coveted doctoral programs.

U.S. Army Research Laboratory – Research Fellow   Aberdeen, MD | August 2018 – December 2020

- Designed 3 interactive simulations in **Unity** to research human-AI interaction with recommender systems and autonomous drones.
- Implemented comprehensive game systems, state synchronization, AI behavior (heuristic and deep RL), ML pipelines, heuristic and collaborative recommender algorithms, user surveys, automated tooling, browser scripting interactions, and API integrations.
- Built backend systems using **Python**, **MSSQL**, and **AWS** services to store models and results from approx. 12,000 completed scenarios.
- Optimized **Unity**'s integration into RL runtimes, reducing TensorFlow model training iterations from over 50 hours to 5 minutes.

SKILLS

Programming	C#, Python, C++, JavaScript/TypeScript, PHP, Hack, C, Java, SQL
Frameworks	Unity, Quest SDK, .NET, Photon, React, Node.js, three.js, Selenium, TensorFlow, Protobuf/capnp
Tools	git, CI/CD (GitHub Actions, Travis CI, GameCI), AWS, Docker, HTTP/REST, Bash/Unix, Arduino, Spark, Presto
Data	ML engineering (pandas/NumPy), inferential/summary statistics, experiment design (traditional/AB), user modeling
Languages	English (native), Spanish (native)

EDUCATION

University of Illinois at Urbana-Champaign   Urbana, IL | August 2016 – August 2022
Doctor of Philosophy (Ph.D.) in Computer Science, concentration in Human-Computer Interaction
Investigating Designed Imperfections in Human-AI Teams Across Parallel Domains, IEEE research award

Northwestern University   Evanston, IL | September 2012 – June 2016
Bachelor of Science (B.S.) in Computer Engineering

Portfolio available at **sebas.me**