Michael Pavkovic

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Education

University of Massachusetts, Amherst	September 2018 – December 2021 (Expected)

Amherst, MA

- B.S. in Computer Science, College of Information and Computer Sciences — Cumulative GPA: 3.96
  - Courses: Introduction to Algorithms, Operating Systems, Programming Principles, Data Structures and Algorithms, Reasoning Under Uncertainty, Computer Systems Principles, Linear Algebra, Calculus III

Work Experience

Software Engineer Intern	Unity Technologies	Summer 2020 (12 weeks)

Perception Team: AI@Unity, Mobile App Development

- SynthDet Viewer: Developed augmented reality app in Swift and C# for viewing output of object detection ML models, providing easier testing and analysis of output in sim2real applications
- Utilized AWS and TorchServe for hosting a fast and reliable model inference REST API, gathering inference output on an image in 0.3 seconds, and converting it into JSON for efficient parsing in the app
- Implemented a LiDAR scanning app in Unity for iPad Pro, providing detailed scanning of rooms and objects
- Interfaced with ARKit for object classification, providing user options in naming and shaping objects for sim2real use
- Wrote efficient shaders to graphically guide users in scanning the scene, allowing for a consistent 60 FPS experience

Software Engineer Intern	Tripadvisor	Summer 2019 (12 weeks)

Tripadvisor Vacation Rentals (VR): Web and Backend Development

- Developed responsive React frontend components and Java/GraphQL backend for our new Broad Geo Page, predicted to boost user engagement and lower bounce rate by 75% compared to old, static page
- Reimplemented major React components using modern functional style and React hooks, reducing technical debt
- Rebuilt mobile "Property Card" with photo carousel to highlight vacation rental photos on the mobile search page, increasing bookings and increasing time spent on our site by 10%
- Created a Postgres read-only store and populator job for filtering and accessing highly popular vacation rentals instantly
- Mentored a new full-time hire on VR Demand, significantly increasing the productivity of the team

iOS Developer	UMass Amherst College of Education	Fall 2018 – Present

Project RAISE – Interactive Textbook iPad App

- Audited app for SQL injection vulnerabilities, improving security and enforcing proper use of the database API
- Polished key user interactive components, allowing for an easier learning experience for students who use the app
- Re-implemented the image creator from the ground up using my MetalLines project, boosting student engagement

HARTS – iPad App for Opioid Epidemic Counselling, Recovery, and Reporting

- Implemented REST API interaction framework, allowing for clean, reusable networking code, saving on development time
- Developed JSON caching system for offline use of the app so case workers could help clients outside of Wi-Fi coverage Enforced accessibility guidelines in development, enabling app to be used by anyone with vision or hearing impairment

Project Experience

MetalLines (2019)

- Developed an iOS/macOS/tvOS computer graphics framework written in Swift and Metal (Apple graphics language)
- Created ability for developers to draw lines and curves on a canvas at 60 frames per second
- Leverages Metal for GPU hardware accelerated rendering on supported Apple devices, for smooth, lag-free drawing
- Added Apple Pencil support and pressure sensitivity to provide a professional-level drawing experience

KunaCalc (2018)

- Designed iOS calculator app written in Swift that features a computer algebra system capable of solving algebra and calculus problems
- Added accessibility features including number readout, left hand mode, color blindness themes, and dictation
- Made it fully end-user programmable for infinite customization and use cases

Awards

- **Tripadvisor Intern Hackathon Semifinalist:** Placed semifinals for developing a virtual reality experience with my team, where users can see Tripadvisor reviews placed on top of businesses' buildings in a street-side view using Google Maps
- **Senior Computer Science Award:** Awarded Computer Science award for dedication to Computer Science in and out of the classroom, Senior year of high school

Languages and Technologies

- Swift, Java, React, JSX, Unity, C#, GraphQL, JavaScript/HTML/CSS/Less, Metal, Kotlin, TypeScript, C, Ruby, Bash
- macOS, Linux, IntelliJ, Xcode, VSCode, Gradle, Fish Shell, Git Version Control, SQLite, PostgreSQL, CI/CD