Shreyas Kishore · श्रेयस किशोर

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skills

Hardware & Software
C & C++, Python, Rust, SystemVerilog, HTML, CSS, JavaScript / Typescript, React, Docker
SoC Design, RTL & High-Level Synthesis, Signal Processing, Embedded Systems
Server Administration, Scripting, Software Automation, Full Stack Development

Miscellaneous
DIY Repair, UI/UX Design
Photoshop, InDesign, Sketch, Figma

professional experience

Passat Research Group
Mentored by Prof. Rakesh Kumar
ECE Department, UIUC
August 2021 – January 2022
Champaign, IL

Research Assistant — Rethinking Programmable Earable Processors
Worked on a project that proposed a suite of representative emerging earable applications with diverse sensor-based inputs and computational requirements.
Implemented a VLIW simulator in C++ modeling a modern DSP and ran computational kernels on the simulator.
Paper "Rethinking Programmable Earable Processors" accepted to ISCA 2022.

Apple
May 2021 – August 2021

Platform Architecture Intern
Worked on driving trace-driven simulation using checkpoints collected from silicon.

Passat Research Group
Mentored by Prof. Rakesh Kumar
ECE Department, UIUC
August 2020 – May 2021
Champaign, IL

Research Assistant — Dual Front-End Microarchitecture Project
Analyzed the feasibility of a microarchitecture that fetches and pre-processes both on-path and off-path instructions on low-confidence branch prediction.
Implemented this modified microarchitecture on the Gem5 Simulator.

Apple
May 2020 – August 2020

Silicon Validation Intern
Developed a software framework that parses & visualizes SoC request-response traces, and provides a Python notebook interface for data-driven discovery and debugging.
Added high-level front-end components that parse complex SoC scan-dump structures to increase debugging productivity.

SyNRG Research Group
Mentored by Prof. Romit Roy Choudhury
ECE Department, UIUC
August 2019 – December 2019
Champaign, IL

Research Assistant — Inaudible Speaker Project
Designed a working prototype for a portable, programmable, and low-cost ultrasound speaker array that produces inaudible sound that digital microphones can detect in the audible spectrum.
Created a 16-bit 192KHz audio driver for the STM32 platform and the speaker array driver circuit.
Implemented real-time audio processing on the STM32 microcontroller.

Google
May 2019 – August 2019
Mountain View, CA

Software Engineering Intern
Worked on Procella, a distributed, highly-scalable SQL query engine built for YouTube analytics, currently serving hundreds of billions of queries per day.
Implemented new caching policies in Procella that accelerated its adoption across more teams at YouTube and Google.

Synchrony
May 2018 – May 2019
Champaign, IL

UI/UX Design Intern
Worked on redesigning Synchrony's eService platform for credit card users.
Conducted user surveys and implemented a data-driven approach for design thinking.

Hardware Engineering Intern
Built a specialized Merchant Terminal that utilizes data-over-sound to securely verify mobile payments.
Worked on firmware for the BCM2837 SoC to fulfil engineering requirements.

education

University of Illinois at Urbana-Champaign
B.Sc. in Computer Engineering · Art & Design Minor
Selected Coursework: Computer Organization & Design,Parallel Computer Architecture, SoC Design, Operating Systems, Digital Systems Laboratory, Signal Processing, Mobile Sensing, Wireless Networks, Data Structures, Algorithms & Models of Computation, Computer Security
August 2017 – May 2022
Champaign, IL

academic projects & experience

NanoRV32I
Designed a RISC-V (RV32I) processor in SystemVerilog from scratch, among a team of three students.
Implemented advaced features such as pipelining, out-of-order execution, branch prediction, speculative execution, and a multi-level cache hierarchy.

Super Hexagon on FPGA
Created a clone of the popular game “Super Hexagon” running entirely in hardware on an Altera DE2-115 FPGA Development Board.

Course Assistant — ECE 434: Mobile Computing Algorithms and Applications
Conducted interactive labs in Python / Jupyter Notebooks to teach students about sensing and signal processing.
Helped students with their assignments and projects.
January 2020 – May 2020

publications

N. Bleier, M. H. Mubarik, S. Chakraborty, S. Kishore, and R. Kumar, “Rethinking programmable earable processors,” *Proceedings of the 49th Annual International Symposium on Computer Architecture*, 2022.

leadership & other projects

SIGCloud – ACM@UIUC
Founded a student organization under ACM@UIUC to teach students how to leverage cloud technologies and DevOps for their projects.
Focused on using platforms such as AWS, Google Cloud Platform, Microsoft Azure, DigitalOcean, CircleCI etc.

Borland C++ for MacOS
Ported Borland's MS-DOS based C/C++ IDE to modern MacOS systems, with platform-specific optimization and custom keymaps.
Used by high school students across India for computer science coursework.
2,000+ Monthly Downloads
145,000+ Users