Akarsh Kumar

Phone:	Email:	Website:	LinkedIn:	GitHub:
(479)-236-4692	akarshkumar0101@gmail.com	akarshkumar.com	akarshkumar0101	akarshkumar0101

3026 Ellen St, Irving, TX, 75062

Overview

- **Objective**: Internship that introduces me to industry level software design, data science, and machine learning
- I am a student aspiring to pursue the fields of computer science, physics, and mathematics in great detail
- Programming since I was 12, I enjoy engineering software for clients and businesses, as well as recreationally
- Learn more about me, my projects/software libraries, and my research at akarshkumar.com
- **Skills**: Java, Python, C++, Swift

Education

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING AND PHYSICS @ **UT AUSTIN**, CLASS OF 2022

- **STEM GPA: 4.00**
- Notable coursework: Intro to Computing, Intro to Electrical Engineering, Differential Equations
- Current coursework: Software Design I, Intro to Embedded Systems, Circuit Theory, Discrete Math, Vector Calculus, Matrices

HIGH SCHOOL DIPLOMA @ **ARKANSAS SCHOOL FOR MATH, SCIENCE, AND ARTS** (ASMSA), CLASS OF 2018

- **GPA: 4.23, ACT: 35**
- Notable coursework: Computer Programming 3 (Algorithms and Data Structures), Graphics Programming, AP Computer Science, Discrete Math, Calculus III, Differential Equations, Number Theory, AP Physics, Modern Physics, Astrophysics

Programming Projects

MACHINE LEARNING PROGRAMS | PERSONAL PROJECT | APRIL 2018 – PRESENT

- Abstract **deep neural network** was made from **complete scratch** in Java and was trained to recognize handwritten digits and more using a stochastic gradient descent approach (inside LibAK on GitHub)
- Abstract **genetic algorithm** was made from **complete scratch** in Java and was trained for the traveling salesman problem and to optimize keyboard layouts, reducing typing effort and typos (inside LibAK and Hackathons on GitHub)
- Genetic algorithm and neural network were combined to train an AI to play pong using a method called **neuroevolution**

COMPUTER ALGEBRA SYSTEM + GRAPHING CALCULATOR | PERSONAL PROJECT | JAN 2015 – PRESENT

- Program to parse mathematical text into a logic tree was made from **complete scratch** and was used to evaluate expressions, calculate partial derivatives, and graph functions (inside LibAK on GitHub)

FREE GEEK VOLUNTEERING PROGRAM | FREE GEEK, AR | AUG 2015 – FEB 2016

- Program to track volunteer hours for the non-profit technology organization, Free Geek
- Address: 521 W Ash St, Fayetteville, AR 72703 | Phone: (479) 966-9512 | Email: info@freegeekarkansas.org

STRATEGIC ANOMALIES | FUTURE STARTUP | DEC 2016 – PRESENT

- Java game resurrecting an old game called Tactics Arena Online was made from **complete scratch**
- University of Arkansas graduate (quinnchildress@gmail.com) and I will soon launch this upon completion

OTHER PROJECTS | 2012 – PRESENT

- LibAK: A comprehensive library including graphing, machine learning, etc. that makes using Java as easy as Python
- Computer Programming 3: maze generation/solving, path finding, hash tables, self-balancing binary search trees
- Graphics Programming: seam carving/expansion for images, personal QR code creation/detection, panorama creation
- Other: Valentine's match making algorithm (competition won), physics simulations, Project Euler (inside LibAK on GitHub)

Research Experience

PHYSICS RESEARCH PROJECT | ASMSA | AUG 2016 – MAY 2018

- Conducted research and wrote a paper on **Optimizing Photovoltaic Cells for Laser Light** for applications in laser power beaming and transferring energy over fiber optics (paper attached on website)
- Competed in **Intel ISEF**, State Science Fair, and Regional Science Fair with presentation, poster, and paper
- Used advanced computing techniques to efficiently calculate data

Leadership Experience

COMMUNITY LEADER (ASMSA)

- Supported students at the ASMSA campus with academic and personal concerns and planned community activities for the school alongside 23 other chosen Community Leaders

CAPTAIN OF ROBOTICS TEAM (FAYETTEVILLE HIGH SCHOOL)

- Lead VEX robotics team to 2nd place in nationals as the lead programmer, robot designer, and project manager

CAPTAIN OF BASKETBALL (ASMSA)

- Organized all practices and aided ASMSA basketball for its annual tournament