Kevin Cao

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https://defcoding.github.io

Education

Indiana University   2016 - Present
   B.S in Computer Science   Expected Graduation Date: May 2021
   Specialization - Software Engineering [**Major GPA:** 3.961 (Cumulative GPA: 3.333)]

Work Experience

Indiana University Student Government   Aug 2020 - Present
Project Manager   Bloomington, IN

- Manage a group of software engineers in rebuilding the IU Student Government website.
- Utilize Ktor/Kotlin to create HTML and CSS templates.

Indiana University Department of Computer Science   May 2019 - Present
Data Structures Undergraduate Instructor   Bloomington, IN

- Collaborate with a team of instructors at weekly meetings and provide input on optimizing future lesson plans.
- Lead laboratory classes to personally guide students and grant hands-on experience with building and optimizing data structures.
- Approach data structures in a variety of perspectives to provide flexible teaching material to students.
- Regularly re-evaluate personal understanding of data structures in order to properly teach students.
- Organize office hours to provide students opportunities to have any questions answered.

Indiana University School of Informatics, Computing, and Engineering   August 2019 - May 2020
Tutor   Bloomington, IN

- Regularly reviewed material from previously taken classes to maintain ability to teach a variety of subjects.
- Successfully managed and guided groups of students requesting tutoring for different subjects.
- Aided Chinese foreign exchange students by teaching in Mandarin Chinese.
- Increased breadth of knowledge to sufficiently answer unexpected questions.
- Seamlessly balanced tutoring workload with student workload.

Tokyo Grill Inc.   June 2015 - Present
IT Support   Terre Haute, IN

- Set up and handle security system to allow for easy remote access to all security footage.
- Gather information using the restaurant database system to reliably track sales and progress reports.
- Install wifi and remote services to enable smooth communication within management and allow for quick access to restaurant data.
- Consult with users and troubleshoot to ensure that all devices in the restaurant run smoothly and do not hinder operations.
- Manage restaurant's social media pages and respond to customer feedback in order to promote restaurant's reputation and boost customer satisfaction.
- Utilize web development and graphic design software to create a user-friendly and intuitive website for the restaurant.

Technology Projects

Notable GitHub Projects

NEAT Dino Run   [*April 2020*]

- Recreated Google Chrome's Dino Run game in Processing 3 and developed an AI using NEAT algorithm that could "beat" the game.
- Added interactivity by allowing user to play along with the AI and try to beat it.
- Implemented real-time graphical interfaces to display neural networks and show progress of generational performance.

Teaching Helper Discord Bot   [*March 2020*]

- Utilized Discord API to create a bot to assist instructors in teaching online classes.
- Streamlined teaching procedures after all classes were abruptly switched to virtual remote teaching due to the COVID-19 outbreak.
- Bot would organize and manage a queue of students, and also maintained a subscription list to teaching topics by taking advantage of Discord reactions.

Sudoku Algorithm   [*February 2020*]

- Implemented backtracking algorithm in Python to solve Sudoku boards of various sizes (9x9 - 36x36).
- Optimized algorithm using logical deductions to reduce backtracking, and incorporated proper data structures to expedite random access, searches, and deletions.
- Created scripts to automate result processing and comparison between algorithms.

Sorting Algorithms Visualizer - Windows Application   [*October 2019*]

- Used Visual Studio, C#, and MVC design scheme to develop a visually appealing sorting algorithm visualizer.
- Implemented events and delegates to link sorting model with front-end interface.
- Re-adapted commonly used sorting algorithms to allow for graphical representation of the processes.
- Exploited multi-threading and buffers to minimize RAM usage while maximizing program speed.

Controllable Laser Pointer - Windows Application   [*September 2019*]

- Integrated C# and Arduino using Visual Studio to control servos attached to a laser pointer.
- Utilized basic electrical wiring to connect servos to the SOC, which is linked to a Windows application.

Related Projects

DefineCoding Website (https://defcoding.github.io)   [*July 2018 - Present*]

- Personal website built from scratch using HTML, CSS, and Javascript.
- Learned responsive website design practices to make the website mobile friendly.
- Educate readers with informative blog posts on various programming concepts.

DefineCoding YouTube   [*February 2020 - Present*]

- YouTube channel created to teach students about data structures and algorithms.
- Utilize Photoshop, Premiere Pro, and Audacity to create videos.

Technical Skills

Programming	*Expert:*	Java, C, Python
	Intermediate:	Racket, Javascript, C#, GDScript, Swift
	Novice:	Kotlin, Arduino
Markup	LaTeX, Markdown, HTML, CSS	
Workflow	Unix Operating Systems (Arch/Ubuntu), Vim/Spacemacs, Git.	
Databases	PostgreSQL	
Multimedia	Photoshop, Premiere, After Effects, Animate, Audacity	
3D Modeling	Autodesk Inventor	
Game Design	Comfortable with Godot, and some experience with Unity.	