RITWIK DUTTA

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SKILLS

Programming Python, C/C++,Java, Linux CLI
6 years of experience with data structures and algorithms

Web Development HTML, CSS, JavaScript, PyMongo
4 years of experience with creating websites either from scratch or using various online technologies and frameworks (*e.g.*, HTML5, CSS3, jQuery, Bootstrap, WordPress, MongoDB, PyMongo)

Graphics Adobe PhotoShop, Inkscape
4 years of experience in creating images or logos for various projects

Video/Audio Editing Adobe After Effects, Audacity
4 years of experience in creating short films, gaming videos , and background audio

IDEs/VC Visual Studio, IntelliJ, Git
5 years of experience in writing code, managing files, and general project for various programming applications and projects

Editors Vim, SublimeText, VS Code
5 years of experience in writing code for various programming applications and projects

TEAM & LEADERSHIP ACTIVITIES

AP Computer Science Class 12th Grade
Teaching assistant helping students understand concepts and work on class projects - 3 hours per week

Computer Science Club 12th Grade
President of the club leading club discussions and selecting topics and problems for in-club activities - 1.5 hours per week

Computer Science Club 11th, 10th, and 9th Grade
Lead officer working with peers on solutions to previous Stanford ProCo problems and teaching about topics in computer science - 1.5 hours per week

Team 4Cast 12th and 11th Grade
Serving as team captain and in-game-leader for the Team 4Cast Counter-Strike lineup to create strategies and coordinate positions with teammates 14 hours per week

Robotics Camp 11th, 10th, and 9th Grade
Camp worker mentoring younger children (from 4th to 8th grade) on creating simple robots and teaching them simple engineering and programming concepts 20 hours per week, 2 weeks in the summer

Team Munster 11th Grade
Serving as team captain and in-game-leader for the Team Munster Counter-Strike lineup to create strategies and coordinate positions with teammates 14 hours per week

Robotics Team 9th Grade
Working with peers on the 2013 FRC competition Ultimate Ascent to design and program an autonomous and teleoperated robot and represented school at Sacramento Valley Regional competition 6 hours per week during off-season (year-round), 15 hours per week during build-season (six weeks)

Science Team 8th Grade
Representing school in the National US Department of Energy Science Bowl as physics and math question specialist 1 hour per week

UNIVERSITY PROJECTS

Carnegie Mellon University Summer 2015
Worked with Prof. R. Marculescu in the Department of Electrical & Computer engineering at CMU in the area of networking and big-data analysis.

Georgia Institute of Technology Summer 2014
Worked with Prof. M. Wolfe in the Department of Electrical & Computer Engineering at Georgia Tech to create a free and open-source end-to-end software system for monitoring long-term-care patients in smart homes (Project Homepage).

PUBLICATIONS

Ritwik Dutta and Marilyn Wolf, "An Extensible Software Infrastructure for Computer Aided Custom Monitoring of Patients in Smart Homes," *International Conference on Systems and Software Engineering (ICSSE)*, Miami, USA, March 9-10, 2015.

Paper | Slides | Presentation video | International Science Index link
Extended version submitted to IEEE Transactions on Software Engineering

BUSINESS VENTURES

Software consultancy 2012-present
Software services online for programming and web development projects catering to individuals and small businesses (*e.g.*, Lytmus, FreshPay, Mantelligence, Max Keyboard)

EduGames Q1 2013
EduGames aimed to create video games that would help students keep up with schoolwork. by developing first-person-shooters and games from other popular genres that kids like to play, where answering in-game questions would allow them to progress while playing; these questions would be from subjects being taught at school. The teachers would then simply issue a code to play an online game in place of homework. I implemented a prototype on Windows, did a break-even analysis based on licensing costs of Unreal and Unity game engines, created a business plan, and pitched the vision to two Silicon Valley investor CEOs to try and secure funding. Though the idea sparked interest, I was asked to develop Android and iOS prototypes and come back with more accurate proof of market interest and projections. Less fluent on developing iOS applications and unable to recruit help, I slowed down considerably, and when my parents found out that I was spending much more time on this uncertain startup project compared to my schoolwork, they put their foot down. By then I had also realized that it was more important for me to focus on schoolwork and get better equipped with a university education before venturing into a startup effort, so I shelved the partially done software, and moved on.

PERSONAL PROJECTS

Select list below

Lectures on Programming Personal Ongoing
Created a series of educational slides and videos for my CS club and robotics camp explaining computer science and programming

Introduction to CS using JavaScript (slides) ... *work in progress*
Programming in Python: Quicksort (video)
Efficient Algorithms: Speeding up Bubblesort (video)

Max Keyboard Configurator Personal Summer 2014
Paid project for Max Keyboards to develop a web-based utility for creating customized keyboard designs with a variety of different layouts (Max Keyboard)

Reverse Polish Calculator Personal Summer 2014
Wrote a simple command line based reverse-Polish notation calculator (rpn_calc)

K.A.R.E Personal Spring 2014
Created a GitHub recommendation engine by using the GitHub API to fetch data about user "starring" to generate good-quality results (K.A.R.E)

Password Manager Personal Spring 2014
Wrote a GUI-based password manager in pure Python using 256-bit AES encryption with a WxWidgets frontend (SecureWallet)

Display Latency Testing NVIDIA Summer 2012
Used photoelectric sensors and HDMI signal equipment to test response time on various LCD TVs in various display modes (cinema mode, vivid mode, and gaming mode)

3D Anaglyph Generation School Fall 2010
Shot 2D images at varying horizontal separations, combining them into 3D anaglyphs, and using the ITU.BT 500 image quality scale to deduce the optimal distance (2.5") for human viewing (project writeup)

COMMUNITY SERVICE ACTIVITIES

Children's Discovery Museum 12th and 11th Grade
Helping young children play "smarter" by asking intellectually stimulating questions to help build basic motor and cognitive skills 4 hours per week

Neighborhood Tech Help 12th - 8th Grade
Helping elderly neighbors in my community with setup, maintenance, and upgrades of their smartphones, computers, receivers, TV's, game consoles, and routers

INTERESTS

Pop-punk bands, Sci-Fi books, Comedy movies
Counter-Strike, FPS games
Guitar, Biking, Karate