JONATHAN XUE

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EDUCATION

Present **University Of Illinois At Urbana-Champaign, Computer Science**, Urbana-Champaign, IL
- James Scholar

PROFESSIONAL/RESEARCH EXPERIENCE

06/2018-08/2018 **Volunteer, FreeGeek Chicago,** Chicago, IL
- Deconstruct electronic devices into its core materials for waste recycling
- Unit tested hardware components (RAM, hard drives, graphics cards, etc.) to ensure functionality. Used PartedMagic to perform data sanitization.
- Built Linux-based systems out of donated and recycled parts

06/2017-08/2017 **Research Intern, McCormick School Of Engineering, Northwestern University**, Evanston, IL
- Ran simulations to study The Effect Of Nanoconfinement On The Structural And Transport Properties Of H_2O
- Used Python to generate three data files, each consistent of 10,000+ lines detailing the molecular composition/bonds of H_2O and a single-walled carbon nanotube of varying diameters
- Wrote separate LAMMPS Molecular Dynamics Simulator input scripts for each experimental case to parse the data files and set appropriate parameters (bounding box, molecular interactions, Lennard-Jones Potential, etc.)
- Used MobaXTerm, an SSH client, to connect to the supercomputer and run the LAMMPS software
- Used Tcl scripts to parse resultant outputs into a legible format for Excel analysis/visualization

SELECTED PROJECTS

Autumn 2018 **Stud-Vision**
- Enhances student education by scanning textbook pages/image and generating 3D models of difficult concepts
- Used Python in Blender to generate 3D chemical models of elements/compounds
- Used Vuforia in Unity to sync interactive 3D models in augmented reality to physical textbook pages
- Used Google Firebase's ML Kit and the Rapid Automatic Keyword Extraction (RAKE) natural language processing algorithm to parse and extract keywords from textual images

Autumn 2017 **Watchdog**
- Used Microsoft Azure's Cognitive Services Platform to develop a facial/emotional recognition software for educational application within classroom settings
- Automates attendance and offers teachers live in-depth analytics regarding the current state of their classroom by continuously collecting data on student emotions. The data is also aggregated to display trends over time.
- Lists the IDs of students with the highest engagement scores, which is calculated through a combination of their attentiveness and positive emotions

Summer 2017 **Caveat**
- Used MongoDB to store Chicago crime data. Data is retrieved from the Chicago Data Portal at 5:00 a.m. each morning and a Python script is used to parse the resultant JSON file. Extraneous/invalid points are eliminated, and crimes are classified under the Uniform Crime Reports Categorization System.
- Used a Node.js Express Server to send data (JSON file of all recent crimes within a certain radius) to clients. Data analytics occur client-side, displayed via: a heat map of crime intensity/severity, a pi-chart detailing the occurrence rates of various crime categories, and a graph showing crime rates over time

LEADERSHIP, PROFESSIONAL ACTIVITIES AND AWARDS

- PennApps XVIII: Top 10 Hack, Top 30 Hack
- Revolution UC VII: Best High School Hack
- Huskie Hacks – Health & Wellness 2017: Green Livin'
- MHacks X: Qualtrics Best Use Of Data Visualization
- Code For The Kingdom – Chicago 2017: Best Pre-Existing Project
- Hackridge 2017: 3rd Place, American Eagle's Choice, Best Domain Name
- CodeDay Chicago 2017: Best Application, Best Overall

- CodeDay Chicago 2018: Mentor
- Illinois Junior Academy Of Science: State Student Executive Board

COMPUTER SKILLS

Languages: C, C++, HTML/CSS, Java, Javascript, Python, Tcl
Database and Client/Server Technologies: Firebase, MongoDB, Node.js
Integrated Development Environments: Android Studio, Arduino, Atom, Cloud9, Eclipse, PyCharm, Visual Studio
Software: Adobe Illustrator, Adobe Photoshop, Adobe XD, Autodesk Inventor, Autodesk Maya. Microsoft Excel