

# JONATHAN XUE

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## EDUCATION

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

- GPA: 3.93

## PROFESSIONAL/RESEARCH EXPERIENCE

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- 1/2018-Present **Research Assistant – Huy Tran, University Of Illinois At Urbana Champaign, Urbana-Champaign, IL**
- Developed software to assist in the Machine Learning Prediction Of Weather-Related Flight Delays
  - Setup a MongoDB database containing key datapoints regarding flight information (departure time, arrival time, origin, destination, delays)
  - Cleaned up existing Python code to increase legibility and scalability
- 09/2018-Present **Research Assistant – Wing Lam, University Of Illinois At Urbana Champaign, Urbana-Champaign, IL**
- Analyze and accommodate test dependencies in regression testing algorithms, namely test prioritization, test parallelization, and test selection
  - Developed two separate Maven plugins to automate the process of accommodating dependent tests
  - Use of the work is 7.1% faster at producing reliable outcomes than regression testing algorithms which assume test independence
- 06/2017-08/2017 **Research Assistant – Wing Kam Liu, McCormick School, Northwestern University, Evanston, IL**
- Ran simulations to study The Effect Of Nanoconfinement On The Structural And Transport Properties Of H<sub>2</sub>O
  - Wrote Python scripts to generate multiple data input files, each consistent of 10,000+ lines detailing the molecular composition/bonds of H<sub>2</sub>O and a single-walled carbon nanotube of varying diameters
  - Used LAMMPS Molecular Dynamics Simulator to specify simulation parameters and retrieve results

## SELECTED PROJECTS

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- 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
- 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

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PennApps XVIII: Top 10 Hack, Top 30 Hack	Revolution UC VII: Best High School Hack
Huskie Hacks – Health & Wellness: Green Livin'	MHacks X: Qualtrics Best Use Of Data Visualization
Code For The Kingdom – Chicago: Best Pre-Existing Project	Hackridge: 3 <sup>rd</sup> Place, American Eagle's Choice, Best Domain
CodeDay Chicago 2017: Best Application, Best Overall	
CodeDay Chicago 2018: Mentor	Illinois Junior Academy Of Science: State Student Executive Board

## COMPUTER SKILLS

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**Languages:** C, C++, HTML/CSS, Java, Javascript, Python

**Database and Client/Server Technologies:** 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