Chung-Ning (Johnnie) Chang

CONTACT
INFORMATION

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RESEARCH
INTERESTS

Differential Privacy, Data Science, Machine Learning, Natural Language Processing, Artificial Intelligence, Entity Resolution

EDUCATION

University of California, Santa Cruz, CA, USA   **Sep '16 - Present**
- PhD, Computer Science, In progress
- Area of Study: Differential Privacy

University of California, Santa Cruz, CA, USA   **Sep '13 - Jun '16**
BA, Computer Science with Highest Honor in the Major
- Focus: Natural Language Processing
- Project: Monologue to Dialogue, Entity Resolution in Familial Networks
- Grader: CMPS 143 Introduction to Natural Language Processing
BA, Linguistics
- Focus: Semantics, Syntax (Ellipsis)

PROFESSIONAL
EXPERIENCE

Google Inc., Seattle, WA

Software Engineering Intern
Mentor: Neo Wu   **Jun '19 - Sep '19**
- Privacy-aware on-device learning for health improvement solutions.

Synopsys Inc., San Francisco, CA

Software Security Intern
Mentor: Andrew van der Stock   **Jun '18 - Sep '18**
- Curated production data for Machine Learning application.
- Applied Deep Learning and traditional ML techniques on software integrity automation using production data. (Python, Weka)
- Prepared project codebase and transferred knowledge for productization.
- Project received the Synopsys ACE South Asia Award, 2018.

RESEARCH
PROJECTS

Graduate Research - University of California, Santa Cruz

Differential Privacy in Genomic Data, Prof. A. G. Thakurta   **Sep '18 - Present**
- Private Allele Frequencies and Linkage Disequilibrium: Privacy-preserving frequency estimation in the setting of genomic data. (Python)

Differential Privacy in NLP, Prof. A. G. Thakurta   **Apr '17 - Present**
- Word Prediction with Local Differential Privacy: predicting the next word given previous words(and POS tags), where the learning is done on locally diff. private data so user information is not disclosed to the central server. (Python)

Privacy in Genomics, BRCA Exchange   **Jul '17 - May '18**
- Identifying Coreferent Genotypes Using Haplotype Information: exploring approaches to reduce genotype information required in identifying overlapping individuals between datasets by considering haplotype information. (Python)

Entity Resolution, LINQS Lab   **Mar '16 - Dec '17**

- Entity Resolution in Familial Networks: determining whether records in a database of familial networks, provided NIH, map to the same individual. (Java)
- Clustering System Data using Aggregate Measures: probabilistic distance metrics for massive, aggregated system log data. (Python)

Undergraduate Research - University of California, Santa Cruz

Research Undergraduate Intern, NLDS Lab   **Jun '15 - Aug '15**

- Argument Similarity: Recognizing arguments in debates.
- Monologue to Dialogue: Transforming monologues into eloquent dialogues.(Python)

Gesture and Semantic Annotation, NLDS Lab   **Aug '14 - Jun '15**

- Assign gestures to monologue-turned dialogues and annotate debate arguments.

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PUBLICATIONS
AND POSTERS
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Chang, J. C-N., Chen, H-J., Pujara, J., Getoor, L. (2018). Clustering System Data using Aggregate Measures. *SysML Conference 2018*.

Chang, J. C-N., Thakurta, A. (2018). Autocompletion with Local Differential Privacy. *IEEE Security and Privacy Symposium (S&P 2018)* (Poster).

Chang, J. C-N., Cline, M. (2018). Identifying Coreferent Genotypes in One-Way Cryptographic Hash Using Haplotype Information. *Annual UC Systemwide Bioengineering Symposium* (Poster).

Hu, Z., Dick, M., Chang, C.N., Bowden, K., Neff, M., Fox Tree, J. E., Walker, M. (2016). A corpus of gesture-annotated dialogues for monologue-to-dialogue generation from personal narratives. *Proc. Language Resources and Evaluation Conf.* (LREC).
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AWARDS

Undergraduate Dean's Award, 2013, 2014, 2015, 2016

Matthews Scholarship, 2014

SELECTED
COURSEWORK

Advanced Machine Learning   **Apr '17 - Jun '17**
Instructor: Prof. Lise Getoor, UC Santa Cruz
- Topics: Statistical relational learning (SRL), graphical models, SRL languages (Markov Logic Networks, Probabilistic Soft Logic, etc.)
- Project: Cross-Device Entity Resolution in Biased Data
- Languages/tools: Python, PSL, MLN

Data Privacy via Machine Learning   **Jan '17 - March '17**
Instructor: Prof. Abhradeep Guha Thakurta, UC Santa Cruz
- Topics: Differential Privacy, Laplace mechanism, Exponential mechanism, private ERM (Output Perturbation, Objective Perturbation, Frank-Wolfe, Online learning)
- Project: Exploring the Sparse Vector Technique in the Propose-Test-Release Framework
- Languages/tools: Python

Machine Learning   **Sep '16 - Dec '16**
Instructor: Prof. S V N Vishwanathan, UC Santa Cruz
- Topics: Density estimation, Bayesian learning, Support vector machines, K-means
- Project: Yelp Dataset Challenge (git)
- Languages/tools: Python

Artificial Intelligence   **Jan '16 - March '16**

Instructor: Prof. Lise Getoor, UC Santa Cruz

- Topics: Machine learning, Optimization problems, models of search
- Project: Pacman Capture-the-Flag Contest (git)
- Languages/tools: Python

Introduction to Natural Language Processing   **Mar '15 - Jun '15**

Instructor: Prof. Marilyn Walker, UC Santa Cruz

- Topics: User behavior, Bayesian and Graphical models, NLTK
- Project: Question answering machine for Aesop's fables and blogs (git)
- Languages/tools: Python

SKILLS

Comfortable: Python, Java, Weka API, Git, UNIX

Some: C, C++, Go (Coder[xx] workshop)