XINYU WANG

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Education:

May 2019 **University of Connecticut**, Storrs, CT
Bachelor of Computer Science & Engineering in School of Engineering
Bachelor of Mathematics in College of Liberal Arts and Sciences
Class of 2019, Honors Program, Dean's list, School of Engineering Scholar, New England Scholar
GPA 3.83/4.0

Awards:

- UConn School of Engineering Synchrony Financial Scholarship in Cybersecurity — *October 2017*
- Third Overall in UConn 2017 Calculus Competition — *April 2017*
- 2016 New England Scholars — *January 2017*
- Dean's list in UConn School of Engineering and School of Liberal Arts and Sciences — *Fall 2015 - Present*

Work Experience:

Undergraduate Researcher in UConn Laboratory of Machine Learning and Health Informatics *April 2017 - Present*

- Collaborated with doctoral and postdoctoral researchers and research faculties from Yale University to study the applications of machine learning algorithms in health informatics.
- Supervisor: Professor Jinbo Bi
- Website: https://healthinfo.lab.uconn.edu/

Undergraduate Technician in UConn Comcast Center for Excellence in Security Innovation *September 2017 - Present*

- Collaborated with doctoral researchers to work on Secure Inter-Domain Routing project which aims to design softwares that provide a user-friendly interface for Internet Service Providers to adopt RPKI, a specialized public key infrastructure framework for securing routing.
- Supervisor: Professor Amir Herzberg
- Website: https://csi.uconn.edu/

Teaching Assistant for UConn Undergraduate Course CSE 2500, CSE 3666 *Spring 2018 - Present*

- Responsibilities include grading students' work and holding weekly office hours.

(Details of my research projects are listed on page 2.)

Skills:

- Programming: (Proficient) Python, Matlab, R, Java, Scheme, Mips Assembly Language
  (Familiar) C++, Javascript, Ruby, MySQL, PostgreSQL, MongoDB
- Web Framework: Flask, Dash
- System: Linux [Arch Linux, Debian (Ubuntu, Raspbian), Red Hat], Windows

Extra-curricular activities/clubs:

- Member of Upsilon Pi Epsilon International Honor Society — *May 2018 - Present*
- Member of UConn Deep Learning Group — *September 2017 - Present*
- Member of UConn 3D Printing Club — *September 2017 - Present*
- Participant of UConn Math Problem Seminar — *January 2017 - Present*
- Member of UConn Math Club — *January 2017 - Present*
- Participated multiple CTF (Capture The Flag) events

Research/Projects:

- **Machine Learning In Drug Discovery and Development** *April 2018 - Present*
  - A research on applying artificial intelligence to drug discovery by developing innovative approaches to incorporate biochemical knowledge derived from data for drug development.
  - Investigated the effectiveness of applying OctNet convolutional network on representing 3D structures of molecules, and analyzed the performances between tSNE and UMAP algorithms applied on dimension reduction of molecule features.
  - Currently work on designing a generalized web-based visualization interface for interactive presentation of clustered molecules for demonstration and analysis purpose.

- **Secure Inter-Domain Routing**
  - A research on protocols to secure inter-domain routing based on current Borderless Gateway Protocol (BGP) and Resource Public Key Infrastructure (RPKI).
  - **SmartValidator** *January 2018 - May 2018*
    - Reviewed and improved the performance of SmartValidator2, a software designed by former researchers to handle conflicted BGP announcements smoothly.
    - Plan on cooperating with Comcast and testing the RPKI smart validator on their network.
  - **RPKI/ROV Forecast Web-Service** *June 2018 - Present*
    - Currently work on designing and building a software that provides forecast service for Internet Service Providers to predict potential impact of adopting specific policies with RPKI. Expect to complete the product by the end of 2018.

- **"A Provable Multi-linear Model for Tensor Completion Using Auxiliary Features"** *September 2017 - April 2018*
  - A research on improving the performance of Tensor completion with Side information (TECOS). A stochastic process is implemented in TECOS to achieve sublinear convergence rate by relaxing the constraints instead of objective functions.
  - Coauthors: Jin Lu, Jiangwen Sun, Xinyu Wang, Jinbo Bi.

- **"Collaborative Phenotype Inference from Comorbid Substance Use Disorders and Genotypes"** *May 2017 - October 2017*
  - A research on predicting symptoms of comorbid conditions using matrix completion method. A stochastic and parallel algorithm LADMM (Linearized Alternating Direction Method) is developed to solve this problem with significant improvement on both efficiency and accuracy compared with other existing algorithms.
  - Contribution: Tested performances of different matrix completion algorithms (extended to tensor completion algorithms in the later project) in large-scale genetic studies of substance use disorders.
  - Coauthors: Jin Lu, Jiangwen Sun, Xinyu Wang, Jinbo Bi.
  - Submitted to and accepted by IEEE BIBM 2017.
  - Invited to publish an extended version on Journal BMC.

- **Parameter Optimization for LADMM using Inverse Method with Neural Network** *December 2017 - Present*
  - A Study on solving the difficulty of locating best parameters during the experiment on the LADMM algorithm using a framework implemented based on a published paper which applied neural network on the traditional inverse method.
  - Implemented LADDM algorithm in Python for future study of solving linear inverse problems suing deep projection models.
  - Currently Suspended the project and plan to continue on this study next year.