Changling (Xavier) Li

Curriculum Vitae

6904 Mayflower Hill Colby College, Waterville, ME, 04901

(207) 313-9820 | xaviercll1998@gmail.com

EDUCATION

Colby College Waterville, ME, USA

Bachelor of Arts in Computer Science & Physics with concentration in Astrophysics 2018-2022

GPA: 3.96 / 4.00

- Relevant Coursework: Neural Networks, Interactive System, Data Structure and Algorithms, Data Analysis and Visualization, Analysis of Algorithms, Data Science in Astrophysics Computer Game Design, Programming Languages, Computer Organization, Real-World Database Design, Honor Thesis on Multi-agent Reinforcement Learning for Task Execution

RESEARCH INTERESTS

Machine learning, Reinforcement learning, Computer Vision

RESEARCH EXPERIENCE

PI: Professor Ying Li

Department of Computer Science, Colby College, Waterville, ME January 2021 - Present

- Modify deep Q-learning Network model (DQN) to multi-agent DQN.
- Assess modified Network Model with OpenAI Gym.
- Formulate case-specific reward function and create scalable environment for drones' trajectory planning.
- Train the model with 9 agents and present visualized trajectories and analysis at Colby College Undergraduate Research Retreat.

PI: Professor Hannen(Hannah) Wolfe

Department of Computer Science, Colby College, Waterville, ME January 2020 – May 2021

- Create core workflow for data processing and animation using Panda, Numpy, Matplotlib.
- Create poly-simplification algorithm to trim data.
- Modify LSTM neural network and monitor the training process with TensorBoard.
- Investigate the correlation between eye focusing and drawing and generate random sketches with the trained model.

PI: Professor Nora Youngs

Department of Mathematics, Colby College, Waterville, ME Spring 2019

- Analyze and document 10+ relevant research paper.
- Develop theorems with proofs on generating Euler Diagram with given abstract description.

ON-GOING RESEARCH PROJECT

- Multi-agent reinforcement learning for energy efficient trajectory planning of drone networks with random task locations.

- Building a public digital platform providing access to digital Chinese magazine database and an interface to analyze the digital humanities data
- Identification of independent moving object in curvilinear self-motion

TEACHING EXPERIENCE

CS353 Interactive System, Colby College Fall 2021
Teaching Assistant
- Grade students' reading response and projects
- Hold weekly TA session to answer course related questions and debug Arduino programs

CS251 Data Analysis and Visualization, Colby College Fall 2020 – Spring 2021
Teaching Assistant
- Hold weekly TA session to answer course related questions and debug Python programs

CS231 Data Structure and Algorithm, Colby College Spring 2019 – Spring 2021
Teaching Assistant
- Hold weekly TA session to answer course related questions and debug Java programs

CS152 Introduction to Fundamentals of Computer Science, Colby College Fall 2019 – Spring 2021
Teaching Assistant
- Grade students' projects weekly on OOD, recursion, etc.
- Hold weekly TA session to answer course related questions and debug Python programs

PH241& PH242 Modern Physics I & II, Colby College Fall 2019 – Spring 2021
Teaching Assistant
- Introduction to modern physics: Special relativity, Quantum mechanics, Atomic physics, etc.,
- Grade students' homework weekly

SKILLS

- **Python**: Extensive expertise in the language and its usage for data analysis, visualization and machine learning.
- **Java**: Proficient in OOD, data structure and algorithms
- **C, C++**: Built Arduino applications, familiar with data structure and algorithms
- **JavaScript**: intermediate level experience with website development including both frontend and backend

HONORS AND PRIZES

- UWC Davis Scholar
- Dean's List F'18, S'19, F'19 (2020 and 2020 - cancelled due to COVID-19)

PRESENTATION & POSTERS

- *Reinforcement Learning for Energy-Efficient Trajectory Planning of Drone Networks*, Changling Li, Jiyao Chen, Ying Li, Colby College Undergraduate Research Retreat.

PUBLICATIONS

- Under Construction…

REFERENCES

Ying Li
Colby College
Assistant Professor, Department of Computer Science
5852 Mayflower Hill, Waterville, ME 04901
O/C: (207) 859-5852
ying.li@colby.edu

Hannen(Hannah) Wolfe
Colby College
Assistant Professor, Department of Computer Science
5550 Mayflower Hill, Waterville ME, 04901
O/C: (207) 859-5858
hewolfe@colby.edu

Oliver W. Layton
Colby College
Assistant Professor, Department of Computer Science
Postdoctoral Researcher, Rensselaer Polytechnic Institute
4000 Mayflower Hill, Waterville ME, 04901
C: (207) 859-5856
oliver.layton@colby.edu