Takahiro Furuya

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Education

Aug.2018– present — **PhD in Computational Science & Engineering**, *Georgia Institute of Technology*, Atlanta, GA, GPA: 3.71/4.0.

Apr.2016– Mar.2018 — **Master of Communications Engineering**, *Tohoku University*, Sendai, Japan, GPA: 3.75/4.0.

Apr.2012– Mar.2016 — **Bachelor of Information and Intelligent Systems**, *Tohoku University*, Sendai, Japan, GPA: 3.68/4.0.

Research

2018–present — **Error Reduction to Global Precipitation Mission (GPM)**, *School of Civil and Environmental Engineering, Georgia Institute of Technology*, Atlanta, GA, PhD research project.
- Reduced errors in the global satellite precipitation data using machine learning techniques (Modified Counter Propagation Network, Deep Neural Network, Recurrent Neural Network)
- Analyzed what errors existed in the global satellite precipitation data
- Coded the analytical programs in R, and the machine learning programs in Python, with PyTorch for neural networks
- Collaborated well with my direct supervisor and advisor

2016–2018 — **Auto-Indexing of our Daily Life Activities from Environmental Sound**, *Tohoku University*, Sendai, Japan, Master's Research Project.
- Built the environmental sound recognition system combining Deep Neural Network (DNN), and other probabilistic models (a Hidden Markov Model and Markov Model)
- Coded the whole system in Python, with library "Chainer" for DNN
- Published the research in a proceeding, presented it in an information technology workshop and symposium
- Collaborated well with my supervisor and advisor

Experience

January.2021– May.2021, January.2022– May.2022 — **Head TA in Modeling&Simulation course**, *Georgia Institute of Technology*, Atlanta, GA.
- Communicated well with students, and got high rate in the students' evaluation
- Made 1 creative problem for the Midterm exam, which helped the most to discern students with good understanding

Sept.12.2016– Sept.17.2016 — **Internship at Ministry of Economy, Trade and Industry**, Tokyo, Japan.
- Worked for finding a new direction of Macro and Micro Economy of Japan
- Collaborated well in teams of 5 or 6 people
- Obtained the top award in one of the team projects

Technical and Personal skills

Programming Languages — **C** (fluent), **R**, **Python**, **C++** (intermediate), **Matlab**, **HTML** and **CSS** (basic, my mock-up homepage with HTML and CSS: https://takahiro02.github.io)

Industry Software Skills — **MS Office products**, **Git/Github**, **Machine learning** (PyTorch, Deep Neural Network, Hidden Markov Model, and so on), **Algorithms** (Dynamic Programming, Divide and Conquer, Branch&Bound, and so on), **Parallel Computing** (OpenMP, OpenACC, MPI, and so on), **Modeling&Simulation** (Dynamical Systems Analysis, Discrete Event Simulation, Cellular Automata, and so on)

Language Skills — Japanese (Native), English (TOEFL iBT 100)

Projects

February.2022– February.2022 — **Building game "Hunt the Wumpus"**, Atlanta, GA.
- Built a text-based game, "Hunt the Wumpus", and later added GUI to it in C++ as a personal project
- Used object-oriented programming techniques
- The code is at https://github.com/takahiro02/Cpp_demos

January.2019– April.2019 — **Modeling of Electric Scouter Movements**, *Georgia Institute of Technology*, Atlanta, GA.
- Built the program to model the movements of electric scouters
- Implemented the code with Cellular Automata and Discrete Event Simulation methods
- Collaborated well with the teammate, and built a great relationship with him