# Cuong Tran

315-395-2059 | cutran@syr.edu | github.com/cuongtran-syr

## Summary

Ten years of experience in machine learning, familiar with different topics on the field. Worked as data scientist and developed credit scores/income scores models based on large-scale telecommunication data for two years. Specialization in Fairness and Differential Privacy for learning model.

## Education

**Syracuse University** Syracuse, NY
*PhD Candidate in Computer Science, GPA:4.0* *Jan. 2020 – May 2024*

Advisor: Prof. F. Fioretto (Syracuse Univ) and Prof. P. V. Hentenryck (Gatech)

**Rutgers University** New Brunswick, NJ
*Graduate Assistant, GPA:3.5* *Aug. 2013 – May, 2017*

**Hanoi University of Science and Technology** Hanoi, Vietnam
*Bachelor in Computer Science* *Aug. 2007 – May, 2012*

## Working Experience

**Data Scientist** Jan 2018 – Jan 2020
*Trusting Social* *Hochiminh, Vietnam*

- Income team lead, managed a team of three research engineers/data analytics
- Developed different income prediction models for 600M phone subscribers from Idea(India), Telkomsel(Indonesia), and Viettel(Vietnam) .
- Two main tasks: feature engineering which involves extracting time series, graph features from billion records of of telco data. Also, mathematical modeling which consists developing ordinal regression, confidence interval,..for income data.

## Projects

**Disparate Impact of Differential Privacy to Census Decision Making** April 2020 – Present

- Identify three key factors which explains negative impact of differential privacy to accuracy parity in Census decision making problem
- Proposed solutions to alleviate such negative impacts

**Deep Learning under Privacy and Fairness Constraint** Jan 2020 – Present

- Developed a deep classification models which are fair among gender or race, and protect users' privacy.
- Main techniques: Differential privacy, cosntrained optimization, Dual Lagrangian method
- Key results: One accepted paper at ECML'20, one submitted to AAAI'21, one submitted to AAMAS'21.

**Domain Adaptation by Copula** May 2016 – May 2017

- Introduced a domain adaptation techniques based on copula framework
- Main techniques: Matrix optimization, feature learning, copula models.
- Key result: One paper accepted at MLSP Workshop 2017.

**Gaussian Process with Ordering Constraint** May 2014 – May 2016

- Extended Gaussian Process modeling with input ordering constraints to predict sea level
- Bayesian non-parametric, constrained learning, spatial-temporal modeling

## Technical Skills

**Languages:** Python(advanced), Matlab (advanced), Java(intermediate), C/C++ (intermediate)
**Frameworks:** PySpark
**Developer Tools**: Git, PyCharm
**Libraries**: Pytorch, Pandas, NumPy, Sklearn,XGBoost, Matplotlib

## Competition

1. NIST Differential Privacy Temporal Map Challenge: ranked 8 on public data
   www.drivendata.org/competitions/69/deid2-sprint-1-prescreened

## Awards

1. Syracuse ECS Graduate assistantship, 2020
2. Rutgers TA/GA Development Fund, 2017
3. Vietnam Education Foundation fellowship, 2013.

## Selected Publications

1. Cuong Tran, Ferdinando Fioretto, and Pascal Van Hentenryck. Differentially private and fair deep learning: A lagrangian dual approach, 2020
2. Ferdinando Fioretto, Pascal Van Hentenryck, Terrence W.K. Mak, Cuong Tran, Federico Baldo, and Michele Lombardi. A lagrangian dual framework for deep neural networks with constraints optimization. In *ECML*, 2020
3. Cuong D Tran, Ognjen Oggi Rudovic, and Vladimir Pavlovic. Unsupervised domain adaptation with copula models. In *2017 IEEE 27th International Workshop on Machine Learning for Signal Processing (MLSP)*, 2017
4. Cuong Tran, Vladimir Pavlovic, and Robert Kopp. Gaussian process for noisy inputs with ordering constraints, 2015