Tom Stesco

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EDUCATION

ETH ZURICH
MSc Integrated Building Systems
October 2018 | Zurich, Switzerland

UNIVERSITY OF WATERLOO
BASc Honours Civil Engineering
June 2016 | Waterloo, ON

LINKS

tomstesco.com
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PROGRAMMING

EXPERT
Python
PROFICIENT
C++ • SQL • Bash
PRIOR EXPERIENCE
Java • Javascript
TOOLS
Numpy • Pandas • Statsmodels
SKlearn • PyMC3 • CasADi
Plotly • Matplotlib • Jupyter lab
MySQL • BigQuery • Pub/Sub
Protobuf • Docker • Kubernetes
GCP • AWS • GNU/Linux • Git

COURSEWORK

GRADUATE
Model Predictive Control
Mathematical Optimization
Computational Physics
Building Control and Automation
Computational Fluid Dynamics
Renewable Energy Technologies
Technology and Innovation Management
Innovation Leadership
Social Networks Research

UNDERGRADUATE
Software Engineering Design Project
Building Science
Air Pollution Control
Bioprocess Engineering
Advanced Calculus
Probability and Statistics
Linear Algebra

EXPERIENCE

ECOBEE | Senior Data Scientist
Jun 2021 – present | Toronto, ON

- Lead development of Model Predictive Control (MPC) optimization algorithms in C++ on embedded IoT devices to increase customer HVAC energy savings and improve thermal comfort.
- Improved IoT device temperature sensor calibration regression model by adding k-fold cross validation and grid search over preprocessing methods to feature engineering and model selection.
- Accelerated thermodynamics predictive modelling team cycle time from weeks to days by automating training, validation, and deployment in GCP using Python and Docker.
- Lead external research collaborations with 4+ groups related to HVAC controls and simulation software and 2 industry partnership MM$ projects.

ECOBEE | Data Scientist
Oct 2018 – Jun 2021 | Toronto, ON

- Scaled internal IoT experimentation platform from 0 to 150k+ devices running 10+ experiments simultaneously by automating build, deployment, and monitoring with C++, Bash, and Python.
- Lead development of **github.com/ecobee/building-controls-simulator**, an open source Python library for HVAC control algorithm performance testing and presented at the **eSim2020** conference.
- Analyzed TB scale sensor and product data to make data driven recommendations and identify issues.

ENERGY PROFILES LIMITED | Energy Data Analyst (Intern)
Sep 2015 – Dec 2015 | Toronto, ON

- Developed equipment issue and input data error detection SQL queries using energy bill and submeter data.
- Added features and bug fixes to energy bill data ingestion pipeline in Java.

RESEARCH

AUTOMATIC CONTROL LAB | Master Student
Sep 2017 – Oct 2018 | Zurich, Switzerland

- Worked with Dr. Annika Eichler on project combining MPC and online Bayesian learning for building controls.
- Developed Python library to model building thermodynamics and run MPC simulation experiments on HPC cluster.
- Developed online Bayesian Linear Discriminant Analysis (LDA) classifier for thermal comfort using PyMC3 with an MCMC algorithm.
- Developed predictive model of occupancy probability in Python using Markov chains and change point detection algorithm.

AWARDS & PROGRAMS

2016	Excellence Scholarship & Opportunity Program	ETH Zurich
2016	Engineer of the Future Fund	University of Waterloo
2012	Merit Scholarship	University of Waterloo
2010	SHAD Valley summer program	SHAD Canada