Clement Thorey

Machine Learning Engineer

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CAREER PROFILE

Machine learning engineer with four years experience leveraging cutting-edge research to automate vegetable harvesting in greenhouse thoughout Europe. Always looking for new opportunities to learn, I am particularly interested in computer vision with application in the real world.

EXPERIENCES

Lead Machine Learning Engineer
2016 - Present

Xihelm, London

I lead the team building the brain of the next greenhouse harvesting robots.

- Weekly review of the latest research in robotics / computer vision (2D/3D).
- Design and implement complex data pipeline to ensure our robots are continously learning from their own experiences.
- Design and train neural networks on a wide range of modalities (image/depth/pointcloud) to solve a large array of tasks required by a complex greenhouse environment (from instance segmentation in 2D/3D to grasp pose estimation and safety evaluation).
- Develop and maintain robot performance dashboards which inform weekly planning.
- Maintain and continuously improve the software stack (ROS/docker).

Data Science fellow
2016 - 2016

Pivigo/Royal Mail, London

Highly competitive workshop helping scientists over five weeks to transition to Data Science through business lectures and a concrete project with a data-driven company.

- I work in a team of 4, referring directly to the head of the Royal Mail data science team, to providea reliable forecast for each mail type arriving in each delivery office in the U.K.
- Using an ensemble of statistical methods, we were able to decrease the forecast error by 35% over 2016 compared to the model currently in use in the company, ultimately leading to a better allocation of resources over the network

PhD in Geophysics
2012 - 2015

Université Diderot, Paris

Detection of solidified magma chambers in the lunar crust through numerical simulations and data exploration.

- Successfully used machine learning and statistics, in combination with a Python library I have written, to process and interpret gigabytes of data from the lunar surface and deliver a one-year project as part of the NASA's GRAIL mission science team.
- Produce efficient pipelines, written in python, to process and visualize gigabytes of data resulting from hundreds of numerical simulations of cooling magma flows.
- Develop excellent communication skills, both in writing by publishing 3 papers in major scientific journals, and speaking, presenting my work in 3 oral awarded presentations in leading international conferences.

Teaching assistant - undergraduate level
2012 - 2016

IPGP/Université Diderot, Paris

- Mathematics - Linear algebra, ODE, PDE, Fourier series, Fourier transform.
- Physics - Mechanics, Experimental Physics.
- Programming - Python.

TECHNICAL SKILLS

python - pytorch | numpy | pandas | seaborn | sklearn | scipy

ROS

toolchain - docker | gcp | aws | git | sql

Javascript | HTML5 | CSS

C++

SIDE PROJECTS / COMPETITIONS

Clog Loss Advance Alzheimer's Research with Stall Catchers competition - Detect clogged blood vessels in mouse brains from short video sequences. By training a network based on the SlowFast architecture, I finished in the top 2% of competitors.

Safe Aging with SPHERE competition - Predicting actual activity from noisy sensor data - Using an ensemble of xgboost and neural network models, I finished in the top 2% of competitors.

Geocolab - Abstract recommendation system for the largest geoscience meeting in the world simplifying the meeting experience and facilitating networking in the community. Flask backend and frontend using Bootstrap. Recommendation based on a LSA representation of 25,000 abstracts.

From Fog Nets to Neural Nets competition. - Predict the yield of DSH's fog nets for every day during an evaluation period. Using an ensemble of recurrent neural networks (LSTM) and auto-regressive models (ARIMA), I was able to finish in the top 5% of the leaderboard.

INTERNATIONAL PEER REVIEWED PUBLICATIONS

- Elastic-plated gravity current with temperature-dependent viscosity.
Thorey, C., Michaut, C.
Journal of Fluid Mechanics.

- Gravitational signatures of lunar floor-fractured craters.
Thorey, C., Michaut, C., Wieczorek, M.A.
Earth and Planetary Science Letters 1–40.

- A model for the dynamics of crater-centered intrusion - Application to lunar floor-fractured craters.
Thorey, C., Michaut, C.
J. Geophys. Res. Planets 119, 286–312

- Magmatic intrusions and deglaciation at mid-latitude in the northern plains of Mars.
Thorey, C., Michaut, C.
Icarus 225, 602–613.

EDUCATION

PhD in Geophysics - Planetary Sciences
IPGP/Université Diderot (Paris)
2012 - 2015

Masters Degree in Theoretical Physics
Ecole Normale Supérieure (Lyon)
2010 - 2012

LANGUAGES

French (Native)

English (Professional)

Spanish (Professional)

INTERESTS

Running

Climbing

Cooking