Geoffrey Négiar

PhD student specializing in continuous optimization algorithms, robust optimization and NLP.

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Webpage - GitHub

Education

PhD student, UC Berkeley, Berkeley, CA *Aug. 2017 - present*

- Supervisors: Laurent El Ghaoui, Michael Mahoney
- Subject: Designing optimization algorithms, with applications to natural language processing and robust machine learning.
- Key publications:
  - Pedregosa, F., **Négiar, G.**, Askari, A., Jaggi, M., Linearly Convergent Frank-Wolfe with Backtracking Line-Search, *AISTATS 2020*.
  - **Négiar, G.**, Dresdner, G. Tsai, A., El Ghaoui, L., Locatello, F., Freund, R. M., Pedregosa, F., Stochastic Frank-Wolfe for Constrained Finite Sum Minimization, *ICML 2020*.
- Key packages:
  - C-OPT: optimization library with the `scipy.optimize` API for first-order optimization.
  - CHOP: a PyTorch library for state of the art constrained optimizers, with applications to adversarial attacks and training.
- GPA: 3.95

MSc: Mathematics, Vision, Learning (MVA), ENS Paris-Saclay, Paris, France *Oct. 2016 - Aug. 2017*

- Full fellowship from the French DARPA (Ingénieur de l'Armemement program).

Data Science track, École polytechnique, Paris, France *Sep. 2013 - Aug. 2016*

- Full fellowship from the French Ministry of Defense (Ingénieur polytechnicien program).
- Entrance exam rank: 5/800.

Professional Experience and Applied Research

Google, Research *Research Intern* *May 2021 - Present*

- Pragmatic Optimization group

Technical consulting *Self-employed* *2017 - Present*

- Technical consulting for early-stage start-ups.
- Examples: Portfolio optimization, Cybersecurity, NLP modelling.

SumUp Analytics, Research team *Part-time Researcher*, San Francisco, CA *Spring 2020*

- Modified the company's optimization-based topic models to incorporate state of the art language models and embeddings.

Bloomberg LP, Pattern Recognition team *Research intern*, New York , NY *June - Nov. 2018*

- Adapted NLP transformer models to predict stock volatility from financial reports.

Shift Technology, R&D team *Research intern*, Paris, France *Apr. - Aug. 2016*

- Reviewed, designed, and implemented methods for time series clustering, and anomalous time series detection.

French Embassy to Russia, Science & Technology Dept. *Intern*, Moscow, Russia *Summer 2015*

- Surveyed Russian research in biotech to improve France's scientific cooperation policies.

Publications and Preprints

1. **Négiar, G.**, Dresdner, G. Tsai, A., El Ghaoui, L., Locatello, F., Freund, R. M., Pedregosa, F., Stochastic Frank-Wolfe for Constrained Finite Sum Minimization, *ICML 2020*, link.
2. Pedregosa, F., **Négiar, G.**, Askari, A., Jaggi, M., Linearly Convergent Frank-Wolfe with Backtracking Line-Search, *AISTATS 2020*, link.
3. **Négiar, G.**, Askari A., Jaggi, M., Pedregosa, F., Linearly Convergent Frank-Wolfe without Prior Knowledge, *NeurIPS 2019 Optimization for Machine Learning Workshop*, link.
4. **Négiar, G.**, Askari A., Pedregosa F., El Ghaoui L., Lifted Neural Networks for Weight Initialization, *NeurIPS 2017 Optimization for Machine learning Workshop*, link.
5. Askari*, A., **Négiar*, G.**, Sambharya, R., El Ghaoui, L., Lifted Neural Networks, *arXiv 2017*, link.

Talks

- **Montreal Machine learning Optimization Meetup (MTL MLOpt)** *Sept. 2020*
  Stochastic Frank-Wolfe for Constrained Finite Sum Minimization [1]
- **ICML 2020** *July 2020*
  Stochastic Frank-Wolfe for Constraint Finite Sum Minimization [1], link
- **NeurIPS 2019 Optimization for Machine Learning Workshop Talk** *Dec. 2019*
  Linearly Convergent Frank-Wolfe without Prior Knowledge [3]
- **DGA MI: French Procurement Agency, Artificial Intelligence Dept.** *July 2019*
  Frank-Wolfe methods for Constrained Optimization.

Skills

Programming Python (5 years), PyTorch, NumPy, SciPy, CvxPy, HTML, CSS, Django
Natural Languages English (native), French (native), Spanish (conversational), Russian (rusty conversational), Japanese (basic)

Awards

- Two Sigma PhD fellowship finalist, 2020
- MSc fellowship, French DARPA: Ingénieur de l'Armement program, 2016-2017
  $\sim$ 30k€ stipend.
- Outstanding Investment at Ecole polytechnique, 2016.
- Full fellowship from the French Ministry of Defense: Ingénieur polytechnicien program, 2013-2016
  $\sim$ 12k€/year stipend + tuition fees.

Interests

Cooking French, Japanese cuisine
Sports Martial arts and combat sports (jiu-jitsu, boxing, mixed martial arts), tennis
Music Jazz piano