Rui Yuan

: https://rui-yuan91.github.io/ : yy42606r@gmail.com

LOOKING FOR A RESEARCH SCIENTIST/POSTDOC POSITION
STARTING IN EARLY 2023 IN *REINFORCEMENT LEARNING* AND *OPTIMIZATION*

PROFESSIONAL EXPERIENCE

Meta AI (formerly Facebook AI Research), Meta, France 2019 - 2022
Institut Polytechnique de Paris, Télécom Paris, France 2019 - 2022

Industrial Ph.D. student at Meta AI and Télécom Paris (Ph.D. expected in Mar. 2023)
Thesis Director: François Roueff (Télécom Paris)
Advisors: Robert M. Gower (Flatiron Institute) and Alessandro Lazaric (Meta AI)
Interests: Reinforcement learning, Large-Scale Stochastic Optimization, Machine learning

EDUCATION

École Polytechnique, France 2017 - 2018
M.Sc. in Data Science

École Polytechnique, France 2012 - 2015
Engineering Degree, **M.Sc.** in Applied Mathematics
Rank 1 French engineering schools

Lycée Janson de Sailly, Paris, France 2010 - 2012
Classes préparatoires (equivalent to **B.Sc.** in Mathematics and Physics)
Intensive courses of Mathematics, Physics and Computer Science leading to the nationwide highly competitive exam for admission to a graduate-level engineering school ("Grande Ecole")

PUBLICATIONS

1. **Rui Yuan**, Simon S. Du, Robert M. Gower, Alessandro Lazaric, Lin Xiao. Linear Convergence of Natural Policy Gradient Methods with Log-Linear Policies. Accepted at *International Conference on Learning Representations* (**ICLR**), 2023.
2. **Rui Yuan**, Alessandro Lazaric, and Robert M. Gower. Sketched Newton-Raphson. Accepted at *Society for Industrial and Applied Mathematics (SIAM) Journal on Optimization* (**SIOPT**), 2022.
3. **Rui Yuan**, Robert M. Gower, and Alessandro Lazaric. A general sample complexity analysis of vanilla policy gradient. Accepted at *International Conference on Artificial Intelligence and Statistics* (**AISTATS**), 2022.
4. Jiabin Chen*, **Rui Yuan***, Guillaume Garrigos, Robert M Gower. SAN: Stochastic Average Newton Algorithm for Minimizing Finite Sums. Accepted at *International Conference on Artificial Intelligence and Statistics* (**AISTATS**), 2022.

*Equal contributions.

ACADEMIC SERVICE

Reviewer for:
Neurips 2022, ICML 2022, AISTATS 2022, Neurips 2021 (Outstanding Reviewer Award given to the top 8% of reviewers), Symposium on Foundations of Computer Science (FOCS) 2020, SIAM Journal on Scientific Computing (SISC)

PRESENTATIONS

Scientific Talks

A general sample complexity analysis of vanilla policy gradient.

- Invited talk at International Conference on Continuous Optimization (ICCOPT), Jul. 26th 2022
  Lehigh University, Bethlehem, Pennsylvania, USA

Sketched Newton-Raphson.

- Invited talk at Workshop on Scientific Computing and Optimization, Dec. 13th 2020
  University of Hong Kong, online

Posters

Linear Convergence of Natural Policy Gradient Methods with Log-Linear Policies.

- 15th European Workshop on Reinforcement Learning (EWRL 2022), Sep. 20th 2022
  Politecnico di Milano, Milan, Italy

A general sample complexity analysis of vanilla policy gradient.

- ICML 2021 Workshop on "Reinforcement learning theory", online Jul. 24th 2021

SAN: Stochastic Average Newton Algorithm for Minimizing Finite Sums.

- 3rd PRAIRIE/MIAI AI summer school (PAISS), online Jul. 8th 2021

Sketched Newton-Raphson.

- ICML 2020 Workshop on "Beyond first-order methods in ML systems", online Jul. 17th 2020

PROJECTS

I have contributed to the theorem proving project at Meta AI, which results in the following publications:

1. HyperTree Proof Search for Neural Theorem Proving
2. Draft, Sketch, and Prove: Guiding Formal Theorem Provers with Informal Proofs

SKILLS AND TOOLS

- **Programming:** **Python** (master - Numpy, PyTorch, scikit-learn, scipy, pandas, Keras ...), **LEAN, JavaScript, PHP, HTML, CSS, Java, R, Matlab, CAML, SQL.**
- **Tools:** Sublime Text (master), Git (master), LaTex (master), tmux, macOS, Linux, web servers.
- **Languages Spoken:** Mandarin (Native), Cantonese (Native), French (Full working proficiency), English (Full working proficiency)

HOBBIES

Accordion: 5 years; Basketball: 11 years; Skiing: 10 years; Badminton: 2 years; Jogging: 2 years