criteo.

Research Scientist, Paris or Palo Alto

Criteo Research is pioneering innovations in online publishing and advertising. As the center of scientific excellence in the company, Criteo Research in Paris and Palo Alto deliver both fundamental and applied scientific leadership through published research, product innovations and new technologies powering the company's products.

We are looking for outstanding machine learning research scientists whose skills span the entire spectrum of scientific research, i.e. data gathering/cleaning, modeling, implementation, publication and presentation.

A Sampling of Research Topics

- **Click prediction:** How do you accurately predict if the user will click on an ad in less than a millisecond? Thankfully, you have billions of data points to help you.
- **Recommender systems:** A standard SVD works well. But what happens when you have to choose the top products amongst hundreds of thousands for every user, 2 billion times per day, in less than 50ms?
- **Auction theory:** In a second-price auction, the theoretical optimal is to bid the expected value. But what happens when you run 15 billion auctions per day against the same competitors?
- **Explore/exploit:** It's easy, UCB and Thomson sampling have low regret. But what happens when new products come and go and when each ad displayed changes the reward of each arm?
- **Game theory/Reinforcement learning:** How to find the optimal bidding strategy across multiple auctions? Can this be cast as a reinforcement learning problem in very high dimensions with unpredictable rewards.

- **Offline testing/Metrics:** You can always compute the classification error on model predicting the probability of a click. But is this really related to the online performance of a new model? What is the right offline metric that predicts online performance?
- **Optimization:** Stochastic gradient descent is great when you have lots of data. But what do you do when all data are not equal and you must distribute the learning over several hundred nodes?

Challenges of this role

- Gather and analyze data, identify key prediction/classification problems, devise solutions and build prototypes
- Research and investigate state-of-the-art data mining, machine learning and modeling techniques to apply to our specific business cases
- Initiate unique modeling projects, develop new and innovative algorithms and technologies and pursue patents where appropriate
- Stay current on published state-of-the-art algorithms and competing technologies
- Maintain academic credentials through publications, presentations and service to the research community
- Develop high-performance algorithms, test and implement the algorithms in scalable, product-ready code

Strong candidates qualifications

- PhD in Machine Learning or a related field.
- Strong hands-on skills in sourcing, cleaning, manipulating and analyzing large volumes of data.
- Strong implementation experience with languages, such as, Python, Perl, Ruby, Java, C#, Scala etc.
- Familiarity with Linux/Unix/Shell environments.
- Knowledge of Hadoop programming environments (e.g. Pig, Hive).
- Good oral and written communication and presentation skills.
- Experience with end-to-end modeling projects emerging from research efforts.
- A track record and interest in contributing to publications and service to the research community.

Criteo R&D Culture

- **Empowerment** – We believe in hiring the best engineers in the industry and then letting them get on with what they do best – designing, coding and releasing state of the art software.
- **Mobility** – In our Voyager program our engineers get to pick which team they want to work on for 2-4 weeks, boosting collaboration, networking and maybe even leading to switching teams.
- **Agility** - We work in a fast pace environment where we build and release stuff frequently to deliver value soon and adapt to changes quickly.
- **Variety** – We have many ways to get your code to production including our Hackathon, 10% projects, Voyager and more.
- **Multicultural** – We have engineers from all over the world for you to interact and exchange ideas with.

Our culture keeps evolving, and you will be expected to contribute actively with new ideas to complement and enhance the existing programs that include frictionless internal mobility, 10% time, mentoring, technical talks, hackathons, conferences, etc.

Are you up to the challenge?