



Software Engineer in Machine Learning

Challenges of this role

- **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?
- **Offline testing:** 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?
- **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?

Are you interested in tackling such problems in an environment where your algorithms are deployed by a team that sits next to you?

What you will do?

- Gather and analyze data, identify key prediction/classification problems, devise solutions and
- build prototypes

- Contribute to the exploration and creation of new scientific understanding
- Initiate and propose unique and promising modeling projects, develop new and innovative algorithms and technologies, pursuing patents where appropriate
- Stay current on published state-of-the-art algorithms and competing technologies
- Maintain world-class academic credentials through publications, presentations, external collaborations and service to the research community
- Develop high-performance algorithms for precision targeting, test and implement the algorithms in scalable, product-ready code
- Research and investigate academic and industrial data mining, machine learning and modeling techniques to apply to our specific business cases
- Interact with other teams to define interfaces and understand and resolve dependencies
- Participate in academic conferences and publish research papers

Strong candidates qualifications

- PhD in Statistics, Machine Learning or a related field, with a previous major in Computer Science
- Experience with traditional as well as modern statistical learning techniques, including: Support Vector Machines; Regularization Techniques; Boosting, Random Forests, and other Ensemble Methods
- Strong implementation experience with high-level languages, such as R, Python, Perl, Ruby, Scala or similar scripting languages
- Familiarity with Linux/Unix/Shell environments
- Strong hands-on skills in sourcing, cleaning, manipulating and analyzing large volumes of data
- Experience with end-to-end modeling projects emerging from research efforts
- Excellent academic or industrial track record of proposing, conducting and reporting results of original research, plus collaborative research with publications
- Strong communication skills both written and oral
- Knowledge of Hadoop programming environments (e.g. Pig, Hive)

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?

Do you want to know more about life in the R&D?

Youtube: [R&D Criteo @ Europe](#)

Our blog: <http://www.criteolabs.com>

Twitter: @CriteoEng