

Internship title: Application of Machine Learning techniques to parasitic extraction (Engineer)

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Location: Synopsys 12, rue Lavoisier 38330 MONTBONNOT

As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software quality and security solutions (<http://www.synopsys.com>). With more than 11000 employees throughout the world, Synopsys is the privileged partner for innovative companies developing the electronic products and software applications we rely on every day.

StarRC is the EDA industry's gold standard for parasitic extraction in IC design (<http://www.synopsys.com/Tools/Implementation/SignOff/Pages/StarRC-ds.aspx>). Increasing process variation and novel parasitic effects in latest technologies are significantly raising parasitic modeling complexity. Consequently, maintaining a good scalability in terms of performance and accuracy is more and more challenging. AI (Artificial Intelligence) and particularly machine learning techniques are now largely deployed in various domains (speech and image recognition, robotics...). They offer a still under-exploited potential in EDA.

The intern will be an active member in the StarRC team (50 R&Ds worldwide, 5 in France) located in Montbonnot St Martin (near Grenoble) and he will be working on designing, experimenting and implementing several machine learning techniques to improve the tool's performance/accuracy trade-offs.

The internship will involve:

- Collection, analysis and classification of the modeling data
- Evaluation of various machine learning techniques (SVM, HMM, neural networks...) using existing packages and presentation of the results to the team
- Implementation of the selected approaches in the most relevant language (Python/C++/Matlab)
- Validation and productization of the adopted solution

This internship represents an excellent opportunity for the candidate to work in a dynamic and international environment, improving his technical software development skills in an industrial context. The candidate will also learn the essential project management methods and tools to efficiently achieve well-defined and time-constrained objectives.

Who are we looking for?

Final year of Engineer school or Master with a specialization in computer science and/or big data/machine learning. Duration: 6 months.

Good background in C/C++, Linux environment, shell/script languages – Fluent in English.

Notions in electronics and IC design would be a plus.

PhD or full-time employment opportunity at the end of the internship.

Compensation: between 1 200 € and 1 400€ / gross month