PostDoc Positions on Programmable Systems for Intelligence in Automobiles (ECSEL/ PRYSTINE Project)

- **Deadline**: June 30, 2018
- **Career levels**: PostDoc
- **Keywords**: Computer Architecture, Simulation, Safety and Security, Reconfigurable Computing, Machine Learning / AI

Applications are invited for a PostDoc to conduct research and development on the creation of highly-efficient programmable hardware for sensor fusion and AI in the context of the ECSEL-funded project Programmable Systems for Intelligence in Automobiles "PRYSTINE" (ADAS). The focus will be on the design of programmable compute hardware to enable automatic driving functions, across two application targets: data fusion for robust perception; and acceleration of AI frameworks for decision making. The PostDoc will investigate the applicability of neuromorphic computing architectures, and programmable hardware fabrics, within PRYSTINE’s envelope of objectives: robust perception & dependable embedded control at reduced cost and power-consumption.

**Key Duties**

Contribute to the research and application of ML/AI decision making software and hardware. This includes the design a programmable hardware system that can efficiently fuse heterogeneous data streams from disparate sensors and data sources, and produce a robust, consolidated data stream that can be used as the basis for object recognition, and scenario assessment. The system will also accelerate communications firmware for interfacing with remote sensors. These efforts will span the flow from architecture exploration, down to system-level design and prototyping, as well as physical design. The hardware neural networks realized either as a full-custom/semi-custom VLSI implementation or within a programmable fabric. Finally, to facilitate efficient and robust multi-sensor data fusion across disparate sources, investigate the hardware acceleration of communication stacks within the programmable system.

**Qualification required**

- This position requires a doctoral degree (or relevant experience) in electronic engineering, computer engineering, or computer science field; or (equivalently)
- 3 years of expertise on the topics relevant to the position.
- A successful candidate has significant experience in VLSI digital and mixed signal system design, circuit design, and knowledge of deep neural networks, machine learning, and analytical modeling.
- A proven record of working and collaborating on larger research and development projects, and a record of developing high-quality results.
- This position includes close interaction with a team of people to design optimal solutions.
- Excellent skills in spoken and written English are required. -Skills include digital hardware design and HDL languages (Verilog, VHDL), experience with digital hardware testing and simulation, programming languages knowledge (C, C++).