PhD Project
Position: Fully-funded PhD studentship in advanced CMOS design.
September 2018 - 2021

STMicroelectronics Imaging Division in partnership with the School of Engineering at the University Edinburgh, is looking to take on a pro-active, engaged, focused PhD student from September 2018 to join our ongoing PhD Programme with a fully-funded position.

STMicroelectronics Imaging Division is a major supplier of optical sensors; ST image sensors and optical modules can be found in many top-branded mobile-phone products. The Imaging Division of STMicroelectronics has a core competence centre for CMOS Image Sensors and Photonics modules R&D in Edinburgh. STMicroelectronics has an advanced capability across a wide range of photon detection, including sensors for consumer, medical, automotive and security markets. With new market trends into 3D imaging in virtual and augmented reality and LIDAR, the need for low power, low cost, high volume smart optical sensors is rapidly expanding. Innovations in photonics technology, leading edge image processing and advanced optics, play a key role in our product development and are sustained by an active collaboration with the University of Edinburgh and other local universities. The CMOS Sensors and Systems group at the University of Edinburgh led by Prof Robert K. Henderson is engaged in world-leading research in Single Photon Avalanche Diode (SPAD) sensing and 3D imaging. The PhD programme strengthens the co-operation between ST and the University with advanced research and development into novel silicon devices, circuit architectures and signal processing.

We are looking for candidates from a range of backgrounds to continue exciting research into our CMOS SPAD and 3D imaging technology. The research project will be tailored to the candidate's experience and interest. The student will design and test their research as a silicon integrated circuit manufactured through ST's foundry in Crolles, France. The student is expected to carry out high quality research, to travel and present work at international conferences and to publish in high quality peer-reviewed research journals.

The applicant should have the following required skills:
- Highly enthusiastic, self-motivated and pro-active student.
- BEng, MEng, BSc or MSc qualification in one or more of the following fields: Electrical/ Electronic Engineering, Computer Science, or Physics, and should meet the minimum entry requirements of the School of Engineering.
- Educational or employment background in one or more of the following fields: CMOS circuit design, CMOS device physics/engineering, software design of computer vision or digital image processing.
- Programming skills in at least 1 language and experience with data processing in MATLAB or similar.
- Fluent in written and spoken English.

One or more of the following skills are desirable for a background in electronics or software design:
- Expertise in analogue VLSI design and/or mixed signal circuit design and simulations. Experience of Cadence, Mentor or Synopsys IC design tools and mixed signal circuit design flows are highly desirable.
- Digital design in RTL (Verilog or VHDL) preferably with development on FPGA.
- Software design of image signal processing and computer vision.
- Interest in imaging, 3D sensing, or biomedical applications.

Alternatively, the following skills are desirable for a background in physics or engineering:
- Expertise in layout tools and 3D device simulators. Preferably experience with Sentarus TCAD software.
- Design of experiments methodology.

Funding and Training

The industrial PhD is fully funded for three years by ST Microelectronics and the successful candidate will join the PhD programme from September 2018 - September 2021. The student will join a group of fully-funded students working primarily at STMicroelectronics site in Edinburgh spending periods in the CMOS Sensors and Systems group at the Scottish Microelectronics Centre, University of Edinburgh. The candidate will have both academic and industrial co-supervision. Additional training is available through the University in complementary skills such as presentation skills, technical and scientific writing, etc.

Application

The application process is open immediately until filled with a successful candidate. To apply please prepare a covering letter, explaining your motivation for applying, and a detailed C.V. including education, academic awards, academic transcript, publications, projects and skills with at least two academic or industrial referees.

Please apply to Prof. Robert Henderson by email: robert.henderson@ed.ac.uk