

# Gaétan Bahl

PhD, Senior Machine Vision Engineer

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## Professional Experience

- Since 2022 **Senior Machine Vision Engineer**, *NXP Semiconductors*, Sophia Antipolis, France.
- Researching Deep Learning methods for embedded computer vision and robotics, mainly stereo depth estimation, neural network compression techniques, low-level vision.
  - Contributing to computer vision pipelines on NXP i.MX MPUs and MCUs.
  - Open-source contributions to the GStreamer ORC library.
  - Built the NXP eIQ Vision Model Zoo (released on GitHub).
  - Held nationwide machine learning trainings for NXP colleagues.
  - Other duties: Mentoring interns and new hires, University relations, DEI initiatives, teaching at local university, local science fairs, attending and reporting on research conferences.
- 2022 **Machine Learning Engineer**, *AzurIA*, Sophia Antipolis, France.
- 4 months Cloud segmentation and boat detection on embedded systems (Jetson, Raspberry Pi, Intel Movidius).
- 2019–2022 **PhD candidate**, *Université Côte d'Azur - Inria - IRT Saint-Exupéry*.
- Deep Learning architectures for onboard satellite image processing.
- 2017–2019 **Computer Vision Engineer**, *Airbus (Meritis subcontractor)*, Sophia Antipolis, France.
- 18 months Development of an aerial image processing pipeline on Google Cloud (C++, Go, Bash, Python). Semantic labelling of 3D city models using Deep Learning (Python, Tensorflow/Keras).
- 2017 **Master's Thesis**, *TIMC-IMAG Laboratory, GMCAO team*, Grenoble, France.
- 6 months Computer Assisted Medical and Surgical Interventions team.  
Built a surgery simulator for fracture reductions (Java, Artisynth, Git).
- 2016 **Software Engineering Intern**, *ARM*, Cambridge, United Kingdom.
- 4 months ARM Compute Library: optimized computer vision algorithms using ARM NEON instructions.  
Built a demo Android app to showcase ARM Compute Library performance (Java, C++, JNI).
- 2015 **R Developer Intern**, *CEA Biomics lab*, Grenoble, France.
- 2 months Built an R Bioconductor package for High Throughput Screening results analysis.

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## Education

- 2019–2022 **PhD in Computer Science**, *Université Côte d'Azur - Inria - IRT Saint-Exupéry*.
- Deep Learning architectures for onboard satellite image processing.
- 2016–2017 **MSc in Industrial and Applied Mathematics**, *Université Grenoble Alpes*.
- Mathematical Modelling, Scientific Computing and Image analysis.
- 2014–2017 **Engineering Degree**, *Grenoble Institute of Technology - ENSIMAG*.
- National Computer Science and Applied Mathematics School in Grenoble.  
Track: Mathematical Modelling, Imaging and Simulation.
- 2012–2014 **Classe Préparatoire in Maths, Physics**, *Lycée Kléber*, Strasbourg.
- Intensive studies preparing for the highly selective "Grandes Ecoles" entrance exams.

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## Selected Publications

- 2022 **Bahl, G.**, and Lafarge, F. Scanner neural network for on-board segmentation of satellite images. IGARSS 2022.
- 2022 **Bahl, G.**, Bahri, M., and Lafarge, F. Single-shot end-to-end road graph extraction. Earthvision CVPR Workshop, 2022.
- 2021 Bahri, M., **Bahl, G.**, and Zafeiriou, S. Binary graph neural networks. CVPR 2021.

2019 **Bahl, G.**, Daniel, L., Moretti, M., & Lafarge, F. Low-power neural networks for semantic segmentation of satellite images. ICCV Workshops 2019.

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## Teaching

Since 2022 **Polytech’Nice Engineering School/EIT Digital**, *Deep Learning*.  
2019–2022 **Polytech’Nice Engineering School**, *Data Science*.  
2021 **Université Côte d’Azur**, *Machine Learning for Image Analysis*.  
2020 **EFREI Paris**, *Mathematics for Geometry*.

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## Other duties

2021–2022 ISPRS Congress Technical Committee  
Since 2020 Reviewer for CVPR, ICCV, ECCV, IGARSS, EARTHVISION (conferences).  
Since 2019 Reviewer for TVCJ, IJCV, ISPRS Photogrammetry & Remote Sensing, ESWA (journals).

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## Skills

<b>Math</b>	Numerical Optimization, Operations Research, Simulation, Mathematical Modelling, Imaging, Signal Processing.	<b>Prog.</b>	Python, C, C++, Go, R, Java, Bash, TensorFlow/Keras, PyTorch, Numpy.
<b>OS</b>	GNU/Linux, Windows, MacOS, iOS, Android	<b>Tools</b>	Atlassian, Git/SVN, L <sup>A</sup> T <sub>E</sub> X, Office
<b>Creation</b>	Reason, Lightroom, Final Cut Pro	<b>Hardware</b>	PC building, Electronics, Arduino

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## Misc.

2023 **Founder**, *NXP Sophia Antipolis board game club*.  
2015–2016 **Secretary**, *Ensimag Student Union*.  
2014–2016 **Quality Manager**, *Nsigma Junior Entreprise*.  
2014–2016 **President and Founder**, *Ensimag Gaming*.  
English Fluent, TOEIC 990 in 2014, TOEFL 102 in 2016.  
German A2 level.  
Other languages Spanish and Japanese beginner level.  
Piano Conservatoire de Strasbourg amateur track, 2014.  
Trombone Played in symphonic orchestra, concert band, marching band, jazz band.  
Hobbies Photography, Videography, Music, Video/Tabletop games, Motorcycling.