

# Cris Lovell-Smith

Computer Vision and AI Engineer



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crislovellsmith



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## PROFILE

I am an AI and computer vision engineer with 20 years of paid development experience across a range of industries, and platforms from embedded systems to cloud deployments. I am a freelancer living in Germany.

## EXPERIENCE

### FREELANCER | AI AND CV SPECIALIST

2022 – Present | Lindau, Germany

### NELSON AI INSTITUTE | HEAD OF AI

2020 – 2022 | Nelson, New Zealand

- Leadership of technical team at NAI.
- Senior Machine Learning Engineer at CarbonCrop.
- Product definition and refinement, and AI PoC development.
- Collaboration with scientific and industry partners, academics, internal teams, and boards of directors.
- Development of deep learning models in classification, semantic segmentation, object detection and object identification including custom models based on FasterRCNN, SSD, U-Net, DeepLabv3, and siamese networks.

### DENSO ADAS/ADASSENS AUTOMOTIVE | RESEARCH AND DEVELOPMENT ENGINEER

2015 – 2019 | Lindau, Germany

- Technical lead in vision based autonomous driving.
- Concept, implementation and validation of computer vision algorithms.
- Concept and development of in-house deep learning framework including custom single stage object detector for embedded platforms in MISRA C.
- Development and demo to customer of vision based collision warning system.
- Concept, implementation, and demonstration of lens obstruction algorithms. Concept was taken to production and sold to two large automotive manufacturers.
- Evaluation of deep learning based monocular depth estimation algorithms for vision based autonomous driving.
- Enhancements to structure from motion technology for assisted parking.
- Design and implementation of validation framework, since used across multiple projects within the company.

### UNIVERSITY MEDICAL CENTRE, FREIBURG GERMANY | RESEARCH SCIENTIST

2010 – 2013 | Freiburg, Germany

- Design and implementation of algorithms for Siemens MRI scanners.
- Design and development of motion correction and system calibration methods.
- Collaboration with external partners, and international customers.

## PUBLICATIONS AND PATENTS

US Patent No. 9 746 540 B2, "Device and Method for Calibrating Tracking Systems in Imaging Systems"

C. D. Lovell-Smith et al, "Combined prospective-retrospective correction applied to 3D brain imaging", Abstract and talk at ESMRMB, 2011.

C. D. Lovell-Smith et al, "Black spot: A prototype camera module" in Image and Vision Computing New Zealand, 2008. IVCNZ 2008. 23rd International Conference.

Complete and unabridged employment and publication history available on request.

## SKILLS

### DEEP LEARNING

CNNs: Object detection • Semantic segmentation • Image classification • Object identification • Monodepth • Self supervised learning

### DEVELOPMENT

Python • Modern C++ • C • Embedded

### LIBRARIES/Frameworks

Tensorflow/Keras • PyTorch • MLFlow • Caffe/DIGITS

### TOOLS/PLATFORMS

Git • Atlassian • CMake • Linux

### LANGUAGES

English (Native) • German (Fluent)

## EDUCATION

### DEEPLARNING.AI

DEEP LEARNING SPECIALISATION  
2019 | Online Coursera

### STANFORD ONLINE

MACHINE LEARNING  
2017 | Online Coursera

### UNIVERSITY OF CANTERBURY

MASTER OF E&E ENGINEERING  
2010 | Christchurch, N.Z.

### UNIVERSITY OF CANTERBURY

BACHELOR OF ELECTRICAL  
AND ELECTRONIC ENGINEERING WITH  
HONORS  
2004 | Christchurch, N.Z.

## AWARDS

Foundation for Research,  
Science and Technology  
Masters scholarship 2007

FRST student scholarship 2003