

# Sonit Singh

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## Address (MQ):


Level 3, Becton-Dickinson (BD) Building  
4 Research Park Drive  
Department of Computing  
Faculty of Science and Engineering  
Macquarie University, Sydney, Australia

**Phone:** +61-(2) 9850 9514


**Email:** [sonit.singh@hdr.mq.edu.au](mailto:sonit.singh@hdr.mq.edu.au); [sonit.singh@data61.csiro.au](mailto:sonit.singh@data61.csiro.au)

**Website:** <https://sonitsingh.github.io/>

 <https://scholar.google.com.au/citations?user=bJxWt4EAAAAJ&hl=en>

 <https://au.linkedin.com/in/sonitsingh>

 <https://github.com/sonitsingh>

 <https://twitter.com/TheSonitSingh>

## Objective

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Highly analytical and proactive problem solver with PhD in Computer Science. Seeking the position of a Research Scientist/Data Scientist to apply in-depth understanding of Computer Vision, Natural Language Processing, and Machine Learning. Coming with a strong knowledge about statistics, deep learning, various deep learning frameworks, data visualisation tools, and working knowledge of healthcare systems and terminology.

## RESEARCH INTERESTS

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- **Computer Vision and Natural Language Processing**
  - Visual Classification
  - Visual Description
  - Visual Question Answering
  - Cross-Modal Retrieval
- **Data Science, Machine Learning, and Deep Learning**
  - Deep Representation Learning
  - Knowledge Bases
  - Information Extraction
  - Multimodal Medical Imaging
  - Health Informatics

## PROFESSIONAL EMPLOYMENTS

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Lecturer  
Department of Computing  
Macquarie University, Sydney, Australia

January, 2020 - Present

Graduate Teaching Assistant  
Department of Computing  
Macquarie University, Sydney, Australia

January, 2017 - December, 2019

Teacher  
Macquarie University International College  
Macquarie University, Sydney, Australia

July, 2018 - December 2018

Software Engineer  
[Australian Centre for Ancient Numismatic Studies \(ACANS\)](#)  
Macquarie University, Sydney, Australia

September, 2017 - February, 2018

Assistant Professor  
Department of Electronics and Communication Engineering  
Lovely Professional University, India

June, 2011 - April, 2016

## EDUCATION

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**Ph.D. (Computer Vision and Natural Language Processing)** 2018-2021  
Macquarie University and DATA61, CSIRO, Sydney, Australia  
Thesis title: "Multimodal Machine Learning"  
Thesis advisors: [Len Hamey](#), [Sarvnaz Karimi](#), and [Kevin Ho-Shon](#)

**Master of Research (Natural Language Processing and Machine Learning)** 2016-2017  
Macquarie University, Sydney, Australia  
Thesis title: "Generalizing Link Prediction for Information Extraction"  
Thesis advisor: [Professor Mark Johnson](#)

**Bachelor of Technology-Master of Technology** 2006-2011  
Lovely Professional University, India  
Specialisation: Electronics and Communication Engineering  
Thesis title: "Design and Simulation of Fractal Antennas for Wireless Communication Systems"  
Thesis advisor: [Navdeep Dhaliwal](#)

## KEY SKILLS

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- **Software Languages:** C, C++, Java, MATLAB, R, and Python
- **Hardware Languages:** Assembly, Embedded C, VHDL, and Verilog
- **Platform:** Windows and Linux (Ubuntu)
- **Tools:** LaTeX, Zotero, EndNote, Overleaf, git
- **ML Frameworks:** Tensorflow, PyTorch, Caffe, Theano, Keras
- **ML Libraries:** Numpy, Scipy, Pandas, TextBlob, Gensim, OpenCV, Scikit-Learn, Scikit-Image
- **Embedded Systems:** Texas Instruments TI C6713, 8085 Micro-processors, Atmel 51 series micro-controllers, Atmel AVR, Xilinx FPGA boards
- Working with various sensors including cameras, PIR, Ultrasonic, LDR and various actuators for control.
- Working with various development boards such as Arduino, BeagleBone, and Raspberry Pi.
- Good verbal and non-verbal communication skills
- Work well in a team

## MAJOR HONORS AND AWARDS

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- DATA61, CSIRO Top-Up Scholarship  
2019-2021 \$10,000 AUD/Year
- Postgraduate Research Fund (Macquarie University)  
January, 2020- June, 2020 \$5,000 AUD
- International Macquarie University Research Excellence Scholarship (iMQRES)  
2016-2021 \$26,000 AUD/Year
- **"Best Teacher"** award on Teacher's day (5 September, 2014)  
Department of Electronics and Communication Engineering  
Lovely Professional University, India
- **"Vice Chancellor's Roll of Academic Excellence"** Department of Electronics and Communication  
Engineering Lovely Professional University, India
- **"Runner-up for technical project at Zonal level"**  
Indian Children Science Congress
- **"Academic Honour"** Awarded by Mrs. Maneka Gandhi  
Ministry of Women and Child Development  
Government of India

## TEACHING EXPERIENCE

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### Lecturer, Department of Computing, Macquarie University

- Session 1, 2020
  - COMP6200: Data Science

### Teaching Assistant, Department of Computing, Macquarie University

- Session 2, 2019
  - COMP257: Data Science
  - COMP329: Artificial Intelligence
- Session 2, 2018
  - COMP257: Data Science
  - COMP329: Artificial Intelligence
- Session 1, 2018
  - COMP225: Algorithms and Data Structures
  - COMP330: Computer Graphics
  - COMP348: Document Processing and the Semantic Web
  - COMP783: Data Science and Machine Learning
- Session 2, 2017
  - COMP257: Data Science
  - COMP329: Artificial Intelligence
- Session 1, 2017
  - COMP348: Document Processing and the Semantic Web

### Teacher, Macquarie University International College

- COMP115: Introduction to Computer Science

## Assistant Professor, Lovely Professional University

- ECE131: Basic Electrical and Electronics Engineering
- ECE231: Electronic Devices and Circuits
- ECE434: Introduction to Artificial Intelligence
- ECE443: Digital Image Processing
- ECE427: Neural Networks and Fuzzy Logic
- ECE550: Soft Computing
- ECE441: Robotics and Automation

## TALKS

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- Machine Learning Reading Group (MLRG) TBD  
Paper discussed: [Knowledge-driven Encode, Retrieve, Paraphrase for Medical Image Report Generation](#)
- Three Minutes (3MT) thesis participation 2019  
Title: "Connecting Images and Words"
- Centre for Language Technology (CLT) 05 August, 2019  
Paper discussed: [XLNet: Generalized Autoregressive Pretraining for Language Understanding](#)
- [Attended Industry Mentoring Networking in STEMM \(IMNIS\)](#) 24 July, 2019  
IMNIS Program Launch - Visionary Leadership
- Image Analysis Reading Group (IARG) 22 July, 2019  
Paper discussed: [Deep Supervised Cross-Modal Retrieval, CVPR 2019](#)
- [Primary and High School Teacher's Workshop](#) 11-12 July, 2019  
Computational Thinking II : Artificial Intelligence (AI) technologies
- [Image Analysis Reading Group \(IARG\)](#) 25 February, 2019  
Paper discussed: [Diverse and Coherent Paragraph Generation from Images](#)
- [Primary and High School Teacher's Workshop](#) July, 2018  
Exploring Concepts in Artificial Intelligence and Computational Thinking
- [Image Analysis Reading Group \(IARG\)](#) 10 September, 2018  
Paper discussed: [CheXNet: Radiologist-level Pneumonia Detection on Chest X-rays with Dee Learning](#)
- Three Minutes (3MT) thesis participation 2018  
Topic: "Connecting Images and Words to Transform Human Lives"
- [Image Analysis Reading Group \(IARG\)](#) 07 May, 2018  
Paper discussed: [Beyond instance-level image retrieval: Leveraging captions to learn a global visual representation for semantic retrieval](#)
- [Image Analysis Reading Group \(IARG\)](#) 07 May, 2018  
Paper discussed: [FVQA: Fact-based Visual Question Answering](#)
- [Image Analysis Reading Group \(IARG\)](#) 05 February, 2018  
Paper discussed: [MDNet: A Semantically and Visually Interpretable Medical Image Diagnosis Network](#)

## PROFESSIONAL MEMBERSHIP

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- Association for Computational Linguistics (ACL)
- Institute of Electrical and Electronics Engineers (IEEE)

## STRENGTHS

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- Critical thinker, Innovative, and goal-oriented
- Analytical, Logical, and attention to details
- Collaborative and persuasive

## HOBBIES

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- Reading motivational books and technical magazines
- Teaching and mentoring
- Cooking and cycling

## REFERENCES

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### [Len Hamey](#)

Deputy Head of Department  
Department of Computing  
Macquarie University  
Suite 351, Level 3  
Becton-Dickinson (BD) Building  
4 Research Park Drive  
Macquarie University  
NSW 2109, Australia  
☎ +61- (2) 9850 9527  
✉ [len.hamey@mq.edu.au](mailto:len.hamey@mq.edu.au)

### [Kevin Ho-Shon](#)

A/Prof. and Interventional Radiologist  
Department of Clinical Medicine  
Macquarie University  
Macquarie Medical Imaging  
Ground Floor, 3 Technology Place  
4 Research Park Drive  
Macquarie University  
NSW 2109, Australia  
☎ +61- (2) 9850 9527  
✉ [kevin.ho-shon@mq.edu.au](mailto:kevin.ho-shon@mq.edu.au)

### [Sarvnaz Karimi](#)

Senior Research Scientist  
Language and Social Sciences Team  
Room 331  
Data61  
CSIRO-Marsfield Site  
Corner Vimiera and Pembroke Road  
Marsfield  
NSW 2122, Australia  
☎ +61- (2) 9372 4222  
✉ [sarvnaz.karimi@data61.csiro.au](mailto:sarvnaz.karimi@data61.csiro.au)

### [Glenn Vanbavinckhove](#)

Director - Analytics & AI  
Deloitte Australia  
Level 9  
225 George Street  
NSW 2000, Australia  
☎ +61- (2) 9322 7000  
✉ [g.vanbavinckhove@deloitte.com.au](mailto:g.vanbavinckhove@deloitte.com.au)