

Senanayak Sesh Kumar Karri

RESEARCH NAME K. S. Sesh Kumar

CONTACT Data Science Institute

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INFORMATION Imperial College London.

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ACADEMIC **Imperial College London.**

POSITIONS Assistant Supervisor, (May 2018 - Present).

Data Science Institute, Imperial College London.

Independent Research Fellow, (Sept 2019 - Present).

Statistical machine learning group, Imperial College London.

Independent Research Fellow, (Dec 2017 - Aug 2019).

Kolmogorov group, IST Austria.

Post-Doctoral Research, (Oct 2016 - Oct 2017).

EDUCATION **SIERRA, École Normale Supérieure/INRIA, Paris, France.**

Doctoral Student, (May 2013 - Sept 2016).

- Advisor : Prof. Francis Bach

École Normale Supérieure, Cachan, FRANCE.

Masters in MVA (Mathématiques Vision et Apprentissage), (Sept 2012- Apr 2013).

- Advisor : Prof. Francis Bach

International Institute of Information Technology, Hyderabad, INDIA.

B.Tech, Computer Science, August 2003.

- Advisor : Prof. C. V. Jawahar

ACADEMIC/WORK **WILLOW - project team, INRIA, Paris, FRANCE.**

EXPERIENCE

Research Engineer

September 2012 - April 2013

- Face detection/recognition algorithms.

Mentors: Dr. Ivan Laptev, Dr. Josef Sivic.

SIERRA - project team, INRIA, Paris, FRANCE.

Internship

January, 2012 - August, 2012

- Convex relaxations for learning bounded treewidth decomposable graphs.

Mentors: Prof. Francis Bach.

Computer Vision and Geometry Group, ETH, Zurich, SWITZERLAND.

Internship

April, 2011 - August, 2011

- Real Time 3D Reconstruction on a cluster of GPUs.

Mentors: Dr. Luca Ballan.

Telecom Sud Paris, Evry, FRANCE.

Research Engineer

February, 2010 - March, 2011

- GPUCV, MediaGPU.

Mentors: Prof. Patrick Horain.

International Institute of Information Technology, Hyderabad, INDIA.

Research Assistant

April, 2003 - May, 2006

- Indian Language OCRs, Document Segmentation.

Mentors: Prof. C. V. Jawahar.

TEACHING

Spring 2020

Machine Learning, MSc Health Data Analytics, Imperial College London.

Autumn 2018

Mathematics for Machine Learning, Dept. of Computing, Imperial College London.

SUPERVISION

- Co-supervise a PhD student with Prof. Marc Deisenroth.
- Supervise(d) 5 masters students.
- Supervised a group project of 5 masters students.

REVIEWING

- International Conference on Machine Learning (2017, 2018, 2019)
- Neural Information Processing Systems.(2017, 2019)
- International Conference on Artificial Intelligence and Statistics.(2018, 2020)
- International Conference on Learning Representation.(2019, 2020)

WORKSHOPS

- Organizer of Imperial @ NeurIPS 2019 workshop.

OTHER ACADEMIC ACTIVITIES

- Organizer of Machine Learning Tutorials at Imperial College London.
- Core Member of Machine Learning Initiative at Imperial College London.

AWARDS AND FELLOWSHIPS

- 2019 - Research Fellowship by Data Science Institute at Imperial College London.
- 2018 - Research Fellowship by Leverhulme Centre for the future of Intelligence.
- 2017 - Data Science Institute Seed funding at Imperial College London, 20000 GBP.

INVITED TALKS

- Research Seminar, UCL Centre for AI, January 2020.
- Imperial @ NeurIPS 2019, Imperial College London, UK, November 2019.
- CSML Seminar, UCL London, UK. January, 2019.
- Leverhulme Centre for Future of Intelligence, Cambridge, UK. July 2018.
- IIIT Hyderabad, India. October, 2017.
- Imperial College London, UK. July 2017.
- EPFL, Switzerland. June 2016.
- TU Munich, Germany. May 2016.
- IST Vienna, Austria. April 2016.
- Microsoft Research, India. October 2015.
- Indian Institute of Science, Bangalore, India. September 2015.

PROFESSIONAL
EXPERIENCE

AMD Research and Development India Pvt. Ltd., Hyderabad, INDIA.

GPGPU Engineer

June, 2006 - January, 2010

PUBLICATIONS

- 1) K. S. Sesh Kumar, F. Bach and T. Pock, “Fast Decomposable Submodular Function Minimization using Constrained Total Variation”. *In Neural Information Processing Systems, 2019.*
- 2) Riccardo Moriconi, Marc P. Deisenroth and K. S. Sesh Kumar, “High-Dimensional Bayesian Optimization with Manifold Gaussian Processes”, *In Bayesian Deep Learning workshop at NeurIPS, 2019.*
- 3) Riccardo Moriconi, K. S. Sesh Kumar and Marc P. Deisenroth, “High-dimensional Bayesian optimization with projections using quantile Gaussian processes”, *Optimization Letters, 2019.*
- 4) K. S. Sesh Kumar and Marc P. Deisenroth, “Differentially Private Empirical Risk Minimization with Sparsity-Inducing Norms”, *In Privacy Preserving Machine Learning (PPML), 2018.*
- 5) K. S. Sesh Kumar and F. Bach, “Active-set Methods for Submodular Minimisation Problems”. *In Journal for Machine Learning Research, 2017.*
- 6) K. S. Sesh Kumar and F. Bach, “Maximizing submodular functions using probabilistic graphical models”. *In workshop on Discrete Optimization for Machine Learning (DISCML-NIPS), 2013.*
- 7) K. S. Sesh Kumar and F. Bach, “Convex Relaxation for Learning Bounded Treewidth Decomposable Graphs”. *In Proceedings of International Conference on Machine Learning (ICML), 2013.*
- 8) D. A. Gómez Járegui, P. Horain, M. K. Rajagopal and K. S. Sesh Kumar, Real-Time Particle Filtering with Heuristics for 3D Motion Capture by Monocular Vision, *In Proceedings of IEEE International Workshop on Multimedia Signal Processing (MMSP), 2010* (poster).
- 9) K. S. Sesh Kumar, Sukesh Kumar and C. V. Jawahar, On Segmentation of Documents in Complex Scripts, *In Proceedings of International Conference on Document Analysis and Recognition (ICDAR), 2007* (poster).
- 10) K. S. Sesh Kumar, Anoop M. Namboodiri and C. V. Jawahar, Learning Segmentation of Documents with Complex Scripts, *In Proceedings of Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), 2006* (oral).
- 11) Sachin Rawat, K. S. Sesh Kumar, Million Meshesha, Indraneel Deb Sikdar, A. Balasubramanian and C. V. Jawahar, A Semi-Automatic Adaptive OCR for Digital Libraries, *In Proceedings of IAPR Workshop on Document Analysis Systems (DAS), 2006* (oral).

12) K. S. Sesh Kumar, Anoop M. Namboodiri and C. V. Jawahar, Learning to Segment Document Images, *In Proceedings of International Conference on Pattern Recognition and Machine Intelligence (PReMI), 2005* (oral).

PREPRINTS

1) K. S. Sesh Kumar, A. Barbero, S. Jegelka, S. Sra, F. Bach, “Convex Optimization for Parallel Energy Minimization”. *In arXiv:1503.01563, 2015.*