SOUMITRA SAMANTA

Contact Information:	Institute of Systems, Molecular and Integrative Biology, Biosciences Building, University of Liverpool, Crown Street, Liverpool L69 7ZB, UK (+44) 7404961944 soumitra(dot)samanta(at)liverpool.ac.uk soumitramath39(at)gmail.com

Education:

PhD in Computer Science   March, 2016
Indian Statistical Institute, India
Thesis Title: **On Human Action Analysis from Video Data**

M.Tech. in Computer Science   July, 2010
Indian Statistical Institute, Kolkata, India
Thesis Title: **Automatic Identification of the Fovea Region in Fundus Image**

M.Sc. in Applied Mathematics   June, 2008
Vidyasagar University, Midnapur, India
Major Subject: **Operations Research**

B.Sc. in Mathematics (Honours.)   June, 2006
Vidyasagar University, Midnapur, India
Major Subjects: **Mathematics, Computer Science and Economics**

Current position: **Postdoctoral Research Associate**   August, 2019 to present
University of Liverpool, Liverpool, UK
Responsibilities: **Working on Predictive Design and Testing, a part of the Sustainable Coatings by Rational Design (SusCoRD)**

Previous position: **Postdoctoral Research Associate**   September, 2016 to August, 2019
University of Liverpool, Liverpool, UK
Responsibilities: **Worked on vision and language a part of the LuCiD project**

Visiting Scientist   March, 2016 to August, 2016
Indian Statistical Institute, Kolkata, India
Responsibilities: **Worked on Indian digital heritage project**

Research area of Interests: **Data Science, Machine Learning, Computer Vision, Image Processing, and Cognitive Computing**

Publications: Book chapter:

1. Mrinmoy Ghorai, Sanchyan Santra, **Soumitra Samanta**, Pulak Purkait and Bhabatosh Chanda, **Book chapter-13: An Image Dataset of Bishnupur Terracotta Temples for Digital Heritage Research**, In *Heritage Preservation, Springer*, doi: https://doi.org/10.1007/978-981-10-7221-5_13, pp. 269-291, 2018

2. Pulak Purkait, Mrinmoy Ghorai, **Soumitra Samanta** and Bhabatosh Chanda, **Book chapter-9: A patch based constrained inpainting for dam-**

aged mural images, In *Digital Hampi: Preserving Indian Cultural Heritage Springer*, doi: https://doi.org/10.1007/978-981-10-5738-0_13, pp. 205-223, 2017

Journals:

1. Yash Khemchandani, Steve O'Hagan, **Soumitra Samanta**, Neil Swainston, Timothy J. Roberts, Danushka Bollegala and Douglas B. Kell, **DeepGraph-MolGen, a multi-objective, computational strategy for generating molecules with desirable properties: a graph convolution and reinforcement learning approach**, In *Journal of Cheminformatics*, 12, 53, September 2020

2. **Soumitra Samanta**, Steve O'Hagan, Neil Swainston, Timothy J. Roberts and Douglas B. Kell, **VAE-Sim: a novel molecular similarity measure based on a variational autoencoder**, In *Molecules*, 25(15), 3446, July 2020

3. Ben Ambridgea, Tomoko Tatsumij, Laura Dohertya, Ramya Maitreyeea, Colin Bannarda, **Soumitra Samanta**, Stewart McCauley, Inbal Arnond, Shira Zichermand, Dani Bekman, Amir Efrati, Ruth Berman, Bhuvana Narasimhan, Dipti Misra Sharma, Rukmini Bhaya Nair, Kumiko Fukumura, Seth Campbell, Clifton Pye, Pedro Mateo Pedro, Sindy Fabiola Can Pixabaj, Mario Marroquín Pelíz, Margarita Julajuj Mendoza, **The crosslinguistic acquisition of sentence structure: Computational modeling and grammaticality judgments from adult and child speakers of English, Japanese, Hindi, Hebrew and K'iche**, In *Cognition*, Vol. 202, pp. 104310, June 2020

4. Mrinmoy Ghorai, **Soumitra Samanta**, Sekhar Mandal and Bhabatosh Chanda, **Multiple Pyramid-based Image Inpainting using Local Patch Statistics and Steering Kernel Feature**, In *IEEE Transaction on Image Processing*, Vol. 28(11), pp. 5495-5509, June 2019

5. Jija Das Gupta, **Soumitra Samanta** and Bhabatosh Chanda, **An Ensemble Classifier based Off-line Handwritten Word Recognition System in Holistic Approach**, In *IET Image Processing*, Vol. 12(8), pp. 1467-1474, March 2018

6. **Soumitra Samanta** and Bhabatosh Chanda, **Space-time Facet Model for Human Activity Classification**, In *IEEE Transaction on Multimedia*, Vol. 16(6), pp. 1525-1535, October 2014

Conferences:

1. **Soumitra Samanta**, Colin Bannard, Julian Pine and the Language05 Team, **Can Automated Gesture Recognition Support the Study of Child Language Development?**, In 42nd *Annual Virtual Meeting of the Cognitive Science Society* (**CogSci**), Toronto, Canada, July 29 - August 1, 2020

2. **Soumitra Samanta** and Franklin Chang, **Modelling Human Understanding of Thematic Roles with Motion Heuristics**, In 17th *International Conference on Machine Learning and Applications* (**ICMLA**), Florida, USA, December 2018

3. Jija Das Gupta, **Soumitra Samanta**, **ISIHWD: A Database for Offline Handwritten Word Recognition and Writer Identification**, In 9th *International Conference on Advances in Pattern Recognition* (**ICAPR**), Bangalore, India, December 2017

4. Mrinmoy Ghorai, Pulak Purkait, Sanchayan Santra, **Soumitra Samanta** and Bhabatosh Chanda, **Bishnupur Heritage Image Dataset (BHID): A resource for various computer vision applications**, In 10th *Indian Conference on Vision, Graphics, and Image Processing* (**ICVGIP**), Guwahati, India, December 2016

5. Mrinmoy Ghorai, **Soumitra Samanta** and Bhabatosh Chanda, **Scale-Invariant Image Inpainting Using Gradient-Based Image Composition.**, In 2nd *Workshop on Computer Vision Applications* (**WCVA**) in conjunction with **ICVGIP**, Guwahati, India, December 2016

6. **Soumitra Samanta** and Bhabatosh Chanda, **Indian Classical Dance Classification on Manifold using Jensen-Bregman LogDet Divergence**, In 22nd *International Conference on Pattern Recognition* (**ICPR**), pp. 4507-4512, Stockholm, Sweden, August 2014

7. **Soumitra Samanta** and Bhabatosh Chanda, **A Novel Technique for Space-Time-Interest Point Detection and Description for Dance Video Classification**, In 9th *International Symposium on Visual Computing* (**ISVC**), pp. 507-516, Crete, Greece, July 2013

8. **Soumitra Samanta** and Bhabatosh Chanda, **FaSTIP: A New Method for Detection and Description of Space-Time Interest Points for Human Activity Classification**, In 8th *Indian Conference on Vision, Graphics, and Image Processing* (**ICVGIP**), Mumbai, India, December 2012

9. **Soumitra Samanta**, Pulak Purkait and Bhabatosh Chanda, **Indian Classical Dance Classification by Learning Dance Pose Bases**, In 12th *Winter Conference on Applications of Computer Vision* (**WACV**), pp. 265-270, Colorado, USA, January 2012

10. **Soumitra Samanta**, Sanjoy Kumar Saha, and Bhabatosh Chanda, **A Simple and Fast Algorithm to Detect the Fovea Region in Fundus Retinal Image**, In 2nd *International Conference on Emerging Applications of Information Technology* (**EAIT**), pp. 206-209, Kolkata, India, February 2011

Others:

1. **Soumitra Samanta**, Colin Bannard, Julian Pine, and the Language05 Team, **Is the automated classification of child gestures feasible?**, In 5th *International Language and Communicative Development Conference*, Manchester, UK, June 12-13, 2019

2. Ramya Maitreyee, Ben Ambridge, Bhuvana Narasimhan, Rukmini Nair, Dipti Sharma and **Soumitra Samanta**, **Disappearing causative overgeneralization errors across five languages: The role of semantics**, In *CUNY 2019* 32nd *Annual CUNY Conference on Human Sentence Processing*, 2019

3. **Soumitra Samanta** and Franklin Chang, **A Computational Model for Thematic Roles Identification**, In 51st *Annual Meeting of the Society for Mathematical Psychology* (**MATHPSYCH**), Madison, USA, July 21-24, 2018

4. **Soumitra Samanta** and Bhabatosh Chanda, **A Data-driven Approach for Human Pose Tracking Based on Spatio-temporal Pictorial Structure**, In *arXiv:1608.00199*

Fellowship/ Awards:

1. Recipient of **Junior and Senior Research Fellowship**, Indian Statistical Institute, 2010-2016

2. Recipient of **TCS best dissertation** award in M Tech(CS), 2010

3. Recipient of **prize money** for being among top students in M Tech(CS) 3rd and 4th Semester, 2009-2010

4. Recipient of **Silver medal** for being second position in M.Sc (Appl. Mathematics), 2008

5. Secured 86th **rank(all India)** and score 96.78 Percentile in **GATE - 2008** National Examination (Mathematics)

Talk/Poster Presentation:

- **Can Automated Gesture Recognition Support the Study of Child Language Development?**
  Venue: The 42nd *Annual Virtual Meeting of the Cognitive Science Society* (**CogSci**), Toronto, Canada
  Date: July 29 - August 1, 2020

- **Human Activity Recognition from Video Data**
  Venue: International Seminar on Mathematics and Computing : Present Perspective, Mahishadal raj College, West Bengal, India
  Date: February 20-21, 2020

- **Human Activity Recognition from Video Data**
  Venue: Dept. of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University, West Bengal, India
  Date: February 18, 2020

- **Is the automated classification of child gestures feasible?**
  Venue: The 5th International Language and Communicative Development Conference, Manchester, UK
  Date: June, 12-13, 2019

- **A Computational Model for Thematic Roles Identification**
  Venue: The 51st Annual Meeting of the Society for Mathematical Psychology, and the 16th Annual Meeting of the International Conference on Cognitive Modelling (MATHPSYCH/ICCM), Madison, USA
  Date: July 21-24, 2018

- **An Introduction to Computer Vision**
  Venue: The 3rd Summer School on Computer Vision, Graphics and Image Processing, ECSU, ISI, Kolkata, India
  Date: June 01 to July 15, 2016

- **Human Activity Recognition from Video Data - a Local Space-time Approach**
  Venue: Computer Society of India, Kolkata Chapter, Kolkata
  Date: March 5, 2016

- **An Introduction to Pattern Recognition**
  Venue: The 18th Workshop on Computational Information Processing, DDM college Agartala, India
  Date: February 4-5, 2016

- **An Introduction to Pattern Recognition**
  Venue: The 2nd Summer School on Computer Vision, Graphics and Image Processing, ECSU, ISI, Kolkata, India
  Date: May 25 ? July 6, 2015

- **An Introduction to Pattern Recognition**
  Venue: The 17th Workshop on Computational Information Processing, NIT Sikkim, India
  Date: September 10-11, 2014

- **Indian Classical Dance Classification on Manifold using Jensen-Bregman LogDet Divergence**
  Venue: The 22nd International Conference on Pattern Recognition (ICPR), Stockholm, Sweden
  Date: August 28, 2014

- **An Introduction to Pattern Recognition and Introduction to Image Processing in Matlab**
  Venue: The 15th Workshop on Computational Information Processing, NEHU Shillong, India
  Date: December 3-4, 2013

- **Bag-of-words model in computer vision and its application in human activity analysis**
  Venue: The 14th Workshop on Computational Information Processing, TIT Agartala, India
  Date: January 23, 2013

- **Fastip: a new method for detection and description of space-time interest points for human activity classification**
  Venue: The 8th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), Mumbai, India
  Date: December 18, 2012

- **Basic Algorithms of Pattern Recognition**
  Venue: The 13th Workshop on Computational Information Processing, AU Assam, India
  Date: December 3-4, 2012

- **Basic Algorithms of Machine Learning and Pattern Recognition**
  Venue: The 12th Workshop on Computational Information Processing, NER-IST Nirjuli, India
  Date: February 22-23, 2012

- **Indian Classical Dance classification by learning dance pose bases**
  Venue: The 12th Winter Conference on Applications of Computer Vision (WACV), Colorado, USA
  Date: January 10, 2012

- **A Simple and Fast Algorithm to Detect the Fovea Region in Fundus Retinal Image**
  Venue: The 2nd Emerging Applications of Information Technology (EAIT), Kolkata, India
  Date: February 20, 2011

Conference/ Workshop Attended:

- **The 40th Annual Meeting of the Cognitive Science Society (CogSci)-2018** during July 25-28 at Madison, USA

- **The 51st Annual Meeting of the Society for Mathematical Psychology, and the 16th Annual Meeting of the International Conference on Cognitive Modelling (MATHPSYCH/ICCM)-2018** during July 21-24 at Madison, USA

- **Annual Conference of Vision Sciences Society (VSS)-2017** during May 18-23 at Florida, USA

- **Summer School on Deep Learning - 2016** during July 11-16 at IIIT, Hyderabad, India

- **2nd Indian Workshop on Machine Learning - 2016** during July 1-3 at IIT, Kanpur, India

- **IFCAM Summer School in Applied Mathematics - 2015** during June 29 to July 15, 2015 at the Department of Mathematics, IISc, Bangalore, India

- **22nd International Conference on Pattern Recognition (ICPR) - 2014** during August 24-28, 2014 at Stockholm, Sweden

- **Winter School in Probability - 2013** during December 16-28, 2013 at SMU, ISI Kolkata, India

- **8th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) - 2012** during December 16-19, 2012 at IIT, Bombay, India

- **IEEE Winter Conference on Applications of Computer Vision (WACV) - 2012** during January 9-11, 2012 at Breckenridge, Colorado, USA

- **ENS/INRIA Visual Recognition and Machine Learning Summer School** during July 25-29, 2011 at ENS/INRIA, Paris, France

- **Advances in Visual Object Recognition and Retrieval** during July 4-8, 2011 at TCE, Madurai, India

- **Workshop on Support Vector Machine and Kernel Learning** during March 22-23, 2011 at ECSU, ISI Kolkata, India

- $2nd^{th}$ **International Conference on Emerging Applications of Information Technology (EAIT) - 2011** During February 19-20, 2011 at Kolkata, India

- 7th **Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) - 2010** During December 12-15, 2010 at IIT, Chennai, India

- **Faculty Development Program on Research & Data Analysis using IBM SPSS Statictics 18 - 2010** during September 29-30 at ISI Kolkata, India

- **Digital Image Processing and Synthesis** during December 14, 2009 - January 22, 2010 at ECSU, ISI Kolkata, India

- **NVIDIA CUDA Architecture and CUDA C Training Program - 2009** at ISI Kolkata, India

- **National Seminar on Scope of Retrieval for Assimilation - 2008** during March 27-28, 2008 at Department of Library and Information Science, Vidyasagar University, Midnapur, India

- **National Seminar on Applied and Computational Mathematics and their Applications - 2008** during March 6-7, 2008 at Department of Mathematics, Vidyasagar University, Midnapur, India

Academic Activities:

- Reviewer of International Journals : **IEEE Transaction on Multimedia, IEEE Transaction on Cybernetics, Engineering Applications of Artificial Intelligence (Elsevier), Sadhana (Springer), IET Image Processing, Physica A: Statistical Mechanics and its Applications (Elsevier)**

- Reviewer of International Conferences : **NCVPRIPG-2015, ICAPR-2015, 2017, ACCV-2014, ICVGIP-2014, 2016, 2018, ICPR-2014, 2016, EAIT-2012, 2014, SEMCCO-2013, RAIT-2016**

- Serve as a International Program committee member : **NCVPRIPG-2015, ICAPR-2015, 2017, EAIT 2014, RAIT-2012**

- Serve as a Organizing committee member : **WeH-2014, WDS-2014, WDRHPA-2013**

- Administrator of **vlrg group (www.isical.ac.in/v̄lrg/)** from August 2013 - 2016

- Member of **Cognitive Science Society (CSS)**, 2018, 2020

- Member of **Vision Sciences Society (VSS)**, 2017

- Member of **Computer Vision Foundation (CVF)**

- Graduate student member of the **Society for Industrial and Applied Mathematics (SIAM), 2016**

- Life member of the **Indian Unit for Pattern Recognition and Artificial Intelligence (IUPRAI)**

Computer Expertise:	Programming Languages: **C, C++, Python, MATLAB** Software tools: **PyTorch, TensorFlow, LaTeX, HTML** Operating Systems: **macOS, Linux variants, Microsoft Windows Vista/7** Applications: **Microsoft Office and other common productivity packages for Windows and Linux platforms**
Personal Information:	Date of Birth: **16th August, 1984** Nationality: **Indian** Marital Status: **Married** Sex: **Male**
Academic Referee :	**On request**