Siddarth Asokan

No. 21, 3rd Main, 2nd Cross, MSH Layout 2nd Stage
Anandnagar, Bengaluru - 560024, Karnataka, India
Contact: +91 98808-90383 | Website | Google Scholar | GitHub
Email: siddartha@iisc.ac.in, siddarth.asokan@gmail.com

ACADEMIC BACKGROUND	***Doctor of Philosophy (Ph.D.)***	*2017 – (2023)*
	(Thesis Submitted: *May 10th, 2023)*	*GPA: 9.80/10*

*(**Thesis Defense (Expected)**: September 2023)*
Robert Bosch Center for Cyber-Physical Systems *(RBCCPS)*
Indian Institute of Science *(IISc.)*, Bengaluru

- ◎ **Thesis Title:** On the Optimality of Generative Adversarial Networks — A Variational Perspective
- ◎ **Areas of research:** Generative modeling, Generative adversarial networks, Langevin diffusion models, High-dimensional Interpolation, Variational Calculus, Fourier analysis
- ◎ Will be awarded Masters of Technology (M. Tech.) (Research) Degree along with Ph.D. Degree.
- ◎ **Supervisor:** Prof. Chandra Sekhar Seelamantula
- ◎ **Selected coursework:** Linear and Non-linear Optimization, Image Processing, Machine Learning for Signal Processing, Pattern Recognition, Reinforcement Learning, Autonomous Navigation, Stochastic Approximation Algorithms, Dynamics of Linear Systems

Bachelor of Engineering (B.E.)	*2013 – 2017*
(Electronics and Communication Engineering)	*GPA: 9.98/10*

M. S. Ramaiah Institute of Technology *(MSRIT)*, Bengaluru,
- ◎ **Rank**: University 1st Rank, Gold Medal
- ◎ **Project Title:** Smart Parking and Surveillance
- ◎ **Selected coursework:** Linear Algebra, Probability Theory, Numerical Methods, Signals and Systems, Digital Signal Processing, Information Theory

INTERNSHIP	***B.E. Project Intern***	*2016 – 2017*

Robert Bosch Center for Cyber-Physical Systems, IISc. Bangalore
- ◎ **Project Title:** Image Processing and Networking for Smart City Applications
- ◎ **Supervisors:** Prof. Bharadwaj Amrutur and Dr. Abhay Sharma

ACCOLADES ***Fellowships***
- ◎ Super Winner – Qualcomm Innovation Fellowship (All-India competitive) 2023
- ◎ Winner – Qualcomm Innovation Fellowship (All-India competitive) 2022
- ◎ Winner – RBCCPS Ph.D. Fellowship (Institute competitive) 2021
- ◎ Winner – Qualcomm Innovation Fellowship (All-India competitive) 2021
- ◎ Winner – RBCCPS Ph.D. Fellowship (Institute competitive) 2020
- ◎ Finalist – Qualcomm Innovation Fellowship (All-India competitive) 2020
- ◎ Winner – Qualcomm Innovation Fellowship (All-India competitive) 2019
- ◎ Winner – Microsoft Research (MSR) Ph.D. Fellowship (Institute Selective) 2018

Awards

⊙ Best Presenter – 14th IISc EECS Symposium – AI/ML Track   2023

⊙ Gold Medal – B.E. (Highest Cumulative GPA - MSRIT, Class of 2017)   2017

⊙ Runners up – Best Project (MSRIT, Class of 2017)   2017

⊙ Finalist – Quest Global INGENIUM Competition (All-India – Top 10)   2017

⊙ Runners up – Ideathon (IISc – MSRIT Symposium on Smart Cities)   2017

⊙ College 2nd Rank – M.E.S. Pre-university College (State 10th Rank)   2013

⊙ School 1st Rank – Poorna Prajna Education Center (State 11th Rank)   2011

PUBLICATIONS

Google Scholar

Journal Publications

1. **S. Asokan** and C. S. Seelamantula, "Euler-Lagrange Analysis of Generative Adversarial Networks," *Journal of Machine Learning Research* **(JMLR)**, 1–100, 2023 (Link)

Conference Articles

1. **S. Asokan** and C. S. Seelamantula, "Spider GAN: Leveraging Friendly Neighbors to Accelerate GAN Training," *In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* **(CVPR) 2023**, Vancouver, Canada (Link)

2. **S. Asokan**, F. S. Mohammed and C. S. Seelamantula, "A Game of Snakes and GANs," *In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing* **(ICASSP) 2023**, Rhodes Island, Greece **(Oral Presentation)** (Link)

3. **S. Asokan** and C. S. Seelamantula, "LSGANs with gradient regularizers are smooth high-dimensional interpolators," *In Proceedings on "INTERPOLATE: First Workshop on Interpolation and Beyond" at* **NeurIPS Workshops 2022**, New Orleans, United States of America (Link)

4. **S. Asokan** and C. S. Seelamantula, "Bridging the Gap Between Coulomb GAN and Gradient-regularized WGAN," *In Proceedings on "The Symbiosis of Deep Learning and Differential Equations (DLDE) - II" at* **NeurIPS Workshops 2022**, New Orleans, United States of America (**Spotlight Presentation**) (Link)

5. **S. Asokan** and C. S. Seelamantula, "Teaching a GAN What Not to Learn," *In Advances in Neural Information Processing Systems* **(NeurIPS) 2020**, Vancouver, Canada (Link)

Preprints (under double-blind review)

1. **S. Asokan**, N. Shetty, A. Srikanth and C. S. Seelamantula, "GANs Settle Scores!," *arXiv preprints, arXiv:2306.00785,* **(arXiv) 2023**, (Link)

2. **S. Asokan** and C. S. Seelamantula, "Data Interpolants – That's What Discriminators in Higher-order Gradient-regularized GANs Are," *arXiv preprints, arXiv:2306.01654,* **(arXiv) 2023**, (Link)

SKILLS

⊙ **Programming Languages**: *Python, C, C++, MATLAB*

⊙ **Libraries**: *NumPy, SciPy, TensorFlow (1.0 and 2.0), TF–Keras, PyTorch*

⊙ **Documentation**: *LaTeX, Markdown*

PROFESSIONAL ACTIVITIES

Invited Talks

1. **"Demystifying Generative AI – From Generative Adversarial Networks to Diffusion Models,"** *EE Summer School (EESS) 2023*, Electrical Engineering Department, IISc, **July 5, 2023**

2. **"The Optimality of Gradient-regularized GANs – Theory and Practice,"** *The 14th IISc Division of Electrical, Electronics and Computer Science (EECS) Student Research Symposium 2023,* IISc, **April 3, 2023**

3. **"Demystifying the Optimal Generator in Generative Adversarial Networks,"** *Qualcomm Innovation Fellowship 2022 – Mid-term Presentation, (Virtual)*, **February 20, 2023**

4. **"An Introduction to GANs and Diffusion Models,"** *EE Summer School 2022*, Electrical Engineering Department, IISc, **July 7, 2022**

5. **"Teaching a GAN What Not to Learn,"** *The 13th IISc Division of Electrical, Electronics and Computer Science (EECS) Student Research Symposium,,* IISc, **April 3, 2022**

6. **"The Optimal Discriminator in GANs,"** *Qualcomm Innovation Fellowship 2021 – Mid-term Presentation, (Virtual)*, **January 31, 2022**

7. **"Teaching a GAN What Not to Learn,"** *The ACM India Joint International Conference on Data Science and Management of Data (CODS-COMAD), Premier Paper Track,* (Virtual), **January 4, 2021**

8. **"ELeGANt - Euler-Lagrange Constraints for Generative Adversarial Networks,"** *Qualcomm Innovation Fellowship 2019 – Mid-term Presentation*, Qualcomm, Bengaluru, **January 31, 2020**

Refereed Publications

⊙ Advances in Neural Information Processing Systems (NeurIPS) 2021 – present

⊙ Intl. Conf. on Acoustics, Speech, Signal Processing (ICASSP) 2021 – present

⊙ International Conference on Learning Representations (ICLR) 2021 – present

⊙ International Conference on Machine Learning (ICML) 2021 – present

⊙ International Conference on Image Processing. (ICIP) 2019, 2020

TEACHING

Teaching Assistant at IISc.

⊙ E9-241 – Digital Image Processing August-December 2019

⊙ E9-241(O) – Digital Image Processing (Online) August-December 2021, 2022

REFEREES

⊙ *Prof. Chandra Sekhar Seelamantula*
Professor, Department of Electrical Engineering, IISc.
css@iisc.ac.in

⊙ *Prof. Bharadwaj Amrutur*
Chair, Robert Bosch Center for Cyber-Physical Systems, IISc.
Professor, Department of Electrical Communication Engineering, IISc.
amrutur@iisc.ac.in

⊙ *Prof. P. S. Sastry*
Professor, Department of Electrical Engineering, IISc.
sastry@iisc.ac.in

⊙ *Prof. Shalabh Bhatnagar*
Professor, Department of Computer Science and Automation, IISc.
shalabh@iisc.ac.in