

Haswanth Vundavilli, Ph.D.

Assistant Professor, Department of Electrical Engineering, IIT (ISM) Dhanbad
131-A, Academic Complex, IIT (ISM) Dhanbad, Jharkhand, India - 826004
haswanth@iitism.ac.in ◊ <https://sites.google.com/view/haswanth-vundavilli/>

CURRENT POSITION

I am currently an Assistant Professor (Grade-I) in the Department of Electrical Engineering at the Indian Institute of Technology (Indian School of Mines), Dhanbad. My primary research interests lie in systems biology, bioinformatics, and computational modeling applied to cancer therapy and drug discovery.

EDUCATION

Texas A&M University, College Station
direct-Ph.D. in Electrical Engineering
Advisor: Dr. Aniruddha Datta

Aug 2016 – May 2021

Indian Institute of Technology, Madras
B.Tech. in Electrical Engineering
Minor in Physics

Aug 2011 – May 2015

JOURNAL ARTICLES

1. **Vundavilli, H.**, Datta, A., Sima, C., Hua, J., Lopes, R., & Bittner, M. (2018). In silico design and experimental validation of combination therapy for pancreatic cancer. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 17(3), 1010-1018. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 3.4*)
2. **Vundavilli, H.**, Datta, A., Sima, C., Hua, J., Lopes, R., & Bittner, M. (2019). Bayesian inference identifies combination therapeutic targets in breast cancer. *IEEE Transactions on Biomedical Engineering*, 66(9), 2684-2692. (*Journal Indexing: WoS-SCIE-Q2; Impact factor: 4.5*)
3. **Vundavilli, H.**, Datta, A., Sima, C., Hua, J., Lopes, R., & Bittner, M. (2019). Cryptotanshinone induces cell death in lung cancer by targeting aberrant feedback loops. *IEEE Journal of Biomedical and Health Informatics*, 24(8), 2430-2438. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 6.8*)
4. **Vundavilli, H.**, Datta, A., Sima, C., Hua, J., Lopes, R., & Bittner, M. (2021). Targeting oncogenic mutations in colorectal cancer using cryptotanshinone. *PLoS One*, 16(2), e0247190. (*Journal Indexing: WoS-SCIE-Q2; Impact factor: 2.6*)
5. **Vundavilli, H.**, Tripathi, L. P., Datta, A., & Mizuguchi, K. (2021). Network modeling and inference of peroxisome proliferator-activated receptor pathway in high fat diet-linked obesity. *Journal of Theoretical Biology*, 519, 110647. (*Journal Indexing: WoS-SCIE-Q2; Impact factor: 2.0*)
6. **Vundavilli, H.**, Datta, A., Sima, C., Hua, J., Lopes, R., Bittner, M., Miller, T., & Wilson-Robles, H. M. (2022). Anti-tumor effects of cryptotanshinone (C19H20O3) in human osteosarcoma cell lines. *Biomedicine & Pharmacotherapy*, 150, 112993. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 7.5*)
7. Gupta, S., **Vundavilli, H.**, Osorio, R. S. A., Itoh, M. N., Mohsen, A., Datta, A., Mizuguchi, K., & Tripathi, L. P. (2022). Integrative network modeling highlights the crucial roles of Rho-GDI signaling pathway in the progression of non-small cell lung cancer. *IEEE Journal of Biomedical and Health Informatics*, 26(9), 4785-4793. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 6.8*)
8. Lahiri, A., **Vundavilli, H.**, Mondal, M., Bhattacharjee, P., Decker, B., Del Priore, G., Reeves, N. P., & Datta, A. (2023). Drug target identification in triple negative breast cancer stem cell pathways: A computational study of gene regulatory pathways using Boolean networks. *IEEE Access*, 11, 56672-56690. (*Journal Indexing: WoS-SCIE-Q2; Impact factor: 3.6*)

9. Aparicio, A. M., Tidwell, R. S., Yadav, S. S., Chen, J.-S., Zhang, M., Liu, J., Guo, S., Pilié, P. G., Yu, Y., Song, X., & others. (2024). A Modular Trial of Androgen Signaling Inhibitor Combinations Testing a Risk-Adapted Strategy in Patients with Metastatic Castration-Resistant Prostate Cancer. *Clinical Cancer Research*, 30(13), 2751-2763. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 10.2*)
10. Mondal, M., Lahiri, A., **Vundavilli, H.**, Del Priore, G., Reeves, N. P., & Datta, A. (2024). A Computational Study of Efficient Combinations of FDA-approved drugs and dietary supplements in Endometrial Cancer. *IEEE Access*, 12, 190746-190759. (*Journal Indexing: WoS-SCIE-Q2; Impact factor: 3.6*)
11. Dhanka, S., Kumar, A., Sharma, A., **Vundavilli, H.**, Maini, S., & Rajasekar, E. (2025). Advances in machine learning and deep learning for hormonal disorder diagnosis: an exhaustive review on PCOS, thyroid, and optimization techniques. *Archives of Computational Methods in Engineering*, 1-45. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 12.1*)
12. Dhanka, S., Sharma, A., Kumar, A., Maini, S., & **Vundavilli, H.** (2026). Advancements in hybrid machine learning models for biomedical disease classification using integration of hyperparameter-tuning and feature selection methodologies: A comprehensive review. *Archives of Computational Methods in Engineering*, 33(1), 289-324. (*Journal Indexing: WoS-SCIE-Q1; Impact factor: 12.1*)

CONFERENCE PROCEEDINGS & ABSTRACTS

1. **Vundavilli, H.**, Tumati, M., Hautaniemi, S., Datta, A., & Kauppi, L. (2022). Image Processing Pipeline to Compute Homologous Recombination Score. *Proceedings of the 12th International Conference on Biomedical Engineering and Technology*, 51-56.
2. Mondal, M., Lahiri, A., **Vundavilli, H.**, Del Priore, G., Reeves, P., & Datta, A. (2023). Combination supplements for endometrial cancer. *2023 IEEE 23rd International Conference on Bioinformatics and Bioengineering (BIBE)*, 238-243.
3. Viscuse, P. V., Tidwell, R., Liu, J., Guo, S., **Vundavilli, H.**, Zhang, M., Subudhi, S. K., Zurita, A. J., Corn, P. G., Tu, S.-M., & others. (2022). DynAMo: A dynamic allocation modular sequential trial of approved and promising therapies in men with metastatic CRPC. *American Society of Clinical Oncology*.
4. Logotheti, S., **Vundavilli, H.**, Papadaki, E., Zhao, Y., Estecio, M. R., Soundararajan, R., Shepherd, P., Dong, J., Hoang, A., Guo, S., & others. (2023). Candidate measures of lineage plasticity in aggressive phenotypes of prostate cancer. *Cancer Research*, 83(7_Supplement), 142-142.

EXTERNALLY FUNDED PROJECTS

Inferring Cancer Networks using Computational Biology

Jan 2024 – Dec 2029

Funding Agency: DST

Budget: Rs. 35,00,000

EXTERNALLY FUNDED ACADEMIC OUTREACH

GIAN Course by Ministry of Education

Aug 2025

Innovations in Infrared Imaging: Transforming Biomedical Diagnosis through Spectroscopy and Engineering

Budget: Rs. 9,96,000

EXPERIENCE

Assistant Professor

Oct 2023 – Present

Indian Institute of Technology (Indian School of Mines)

Dhanbad, Jharkhand

- **Teaching:** Signals, Systems and Networks; Instrumentation; Microprocessor and Microcontroller; Control and Measurement Lab; Networks Lab; Advanced Measurement & Instrumentation Lab.
- **Research:** Integrating Multi-Modal Data Using Machine Learning for Advancing Personalized Medicine.

Postdoctoral Research Fellow

*University of Luxembourg
Advisor: Dr. Antonio del Sol*

Aug 2023 – Sep 2023

Belval, Luxembourg

- **Understanding and management of paediatric SIRS:** Studied personalised immune profiling to develop individualized therapies and improve patient outcome in severe inflammatory response syndrome.

Postdoctoral Research Fellow

*The University of Texas MD Anderson Cancer Center
Advisor: Dr. Wenyi Wang*

Jun 2021 – Oct 2022

Houston, Texas

- **Quantifying plasticity in Prostate cancer:** Analyzed single cell RNA sequencing data to quantify plasticity in prostate cancer and its role in evading therapy.

Graduate Research Assistant

*Texas A&M University, College Station
Advisor: Dr. Aniruddha Datta*

Aug 2016 – May 2021

College Station, Texas

- **Mathematical Modeling of Cancer Networks:** Applied probabilistic inference algorithms and boolean circuit based simulations to infer best therapeutic targets and drugs in various cancer pathways.

Visiting Graduate Student

*University of Helsinki
Guide: Dr. Sampsa Hautaniemi*

Jun 2019 – Aug 2019

Helsinki, Finland

- **Automating the Computation of HR Score:** Developed a technique to automate the computation of Homologous Recombination score of patients using a modified watershed algorithm technique in image processing.

Visiting Graduate Student

*National Institutes of Biomedical Innovation, Health and Nutrition
Guide: Dr. Kenji Mizuguchi*

Sep 2019 – Nov 2019

Osaka, Japan

- **Network Modeling of PPAR Pathway:** Using a bayesian framework, inferred aberrant sub-pathways in the PPAR pathway under different dietary scenarios.

TATA Communications

Assistant Manager

Jun 2015 – Jul 2016

Hyderabad, India

- **Global Services and Project Implementation:** Executed the field level installation and commissioning of DWDMs, multiplexers, and routers. Managed international projects on cable laying and upgrades.

General Electric

Summer Intern

May 2014 – Jul 2014

Bangalore, India

- **Locomotive and Services:** Developed logic and wrote specifications for a software in an automated box of locomotive to transmit information in HEX and ASCII formats.

Bharat Heavy Electricals Limited

Summer Intern

Jul 2013

Hyderabad, India

- **Manufacturing Processes of Turbo Generators:** Studied the manufacturing, insulation, assembly, balancing, and testing process of a 60Hz (3000rpm) 3-phase AC Generator.

AWARDS AND HONORS

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- Secured all-India rank of **355** (top 0.07%) in Indian Institute of Technology Joint Entrance Examination (IIT-JEE 2011) and was awarded a merit scholarship by IIT Madras for the same.
 - Secured all-India rank of **364** (top 0.03%) in All India Engineering Entrance Examination (AIEEE) 2011.

- Awarded Texas A&M graduate one-time scholarship (2016) to qualify for a non-resident tuition waiver and a scholarship award of 1000\$ per academic year.
- Awarded travel grant (2025) by Institute for Protein Research, Osaka University, Japan, for promoting collaborative research.

RESEARCH SCHOLARS

- Mr. Sarvil Munipally, Integrated M.Tech-PhD candidate, 2023 - Present.
- Mr. Sampad Barik (joint with Dr. Sukanta Halder), PhD candidate, 2024 - Present.

PROFESSIONAL ACTIVITIES

- Reviewer: PLOS One, IEEE Transactions on Biomedical Engineering, IEEE Journal of Biomedical and Health Informatics, IEEE/ACM Transactions on Computational Biology and Bioinformatics.
- The University of Texas MD Anderson Cancer Center: Communications Subcommittee Team Member (2022), Postdoctoral Association Executive Committee.
- IIT (ISM) Dhanbad: Member DPGC, Treasurer EES, Faculty in charge Rythm Club & Udaan Club.

TECHNICAL STRENGTHS

Languages and Tools

Python, SQL, Matlab, R, L^AT_EX

REFERENCES

Dr. Aniruddha Datta

Professor, Texas A&M University
Email: datta@ece.tamu.edu

Dr. Sampsa Hautaniemi

Professor, University of Helsinki
Email: sampsa.hautaniemi@helsinki.fi

Dr. Yang Shen

Assistant Professor, Texas A&M University
Email: yshen@tamu.edu

Dr. Kenji Mizuguchi

Professor, Osaka University
Email: kenji@nibiohn.go.jp

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