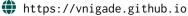
Vinod Vijay Nigade

Postdoctoral Researcher at Vrije Universiteit Amsterdam

☑ vinod.nigade@gmail.com

in vinod-nigade

vnigade



Research Interests

I have around thirteen years of research and development experience in computer systems, including machine learning systems, systems for video analytics, data storage, and distributed systems. My current research focus is on developing *efficient* [networked] systems for machine learning (ML) [inference]. During my PhD, I worked on designing an inference serving system for latency-sensitive video analytics applications by leveraging the strengths of various modern computing platforms, spanning end devices, the edge, and the cloud.

Professional Experience

2023 - · · · Postdoctoral Researcher

*Vrije Universiteit Amsterdam, The Netherlands*Working in the HPDC group of the Computer Systems section.

2017 – 2018 Principal Software Engineer

Izel Technologies, Pune, India

Worked on a minimum viable product for source code analysis and code completion.

2017 – 2017 **Software Engineer**

WEBB Traders, Amsterdam, The Netherlands

C++ developer for developing the proprietary trading system.

2015 – 2015 Research Assistant

CNCR, Vrije Universiteit Amsterdam, The Netherlands

Wrote software to control the internally designed hardware to study rodent behavior.

2011 – 2014 Software Engineer

Symantec Corporation (now Veritas), Pune, India

Worked on veritas volume manager (VxVM), specifically on veritas volume replicator.

Education

2018 – 2023 **Ph.D. in Computer Science**

Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

Thesis title: Latency-Critical Inference Serving for Deep Learning

Advisors: prof. Henri Bal and prof. Lin Wang

2014 - 2016 M.Sc. cum laude in Parallel and Distributed Computer System

Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

Thesis title: Efficiently Detecting Use-After-Free Exploits in Multi-Threaded Applications

Advisors: dr. Cristiano Giuffrida and dr. Erik van der Kouwe

2007 – 2011 B.Tech. in Computer Science and Engineering

Walchand College of Engineering, Sangli, India

Thesis title: Enhanced Implementation of Evolutionary Optimization Service Times in IVRS

Advisors: dr. B. F. Momin

Publications & Patents

Conference Proceedings

G. Liu*, **V. Nigade***, H. Bal, and L. Wang, "A little certainty is all we need: Discovery and synchronization acceleration in battery-free iot," in *ACM Asia-Pacific Workshop on Networking (APNET)*, 2024.



- K. Razavi, S. D. Fard, G. Karlos, V. Nigade, M. Mühlhäuser, and L. Wang, "NetNN: Neural intrusion detection system in programmable networks," in IEEE Symposium on Computers and Communications (ISCC), 2024.
- G. H. Apostolo, P. Bauszat, V. Nigade, H. E. Bal, and L. Wang, "Live video analytics as a service," in ACM European Workshop on Machine Learning and Systems (ACM EuroSys EuroMLSys), 2022, pp. 37-44.
- V. Nigade, P. Bauszat, H. Bal, and L. Wang, "Jellyfish: Timely inference serving for dynamic edge networks," in IEEE Real-Time Systems Symposium (RTSS), 2022, pp. 277–290. Q Outstanding Paper Award.
- K. Razavi, G. Karlos, V. Nigade, M. Mühlhäuser, and L. Wang, "Distributed DNN serving in the network data plane," in *International Workshop on P4 in Europe (EuroP4)*, 2022, pp. 67–70.
- **6** V. Nigade*, R. Winder*, H. Bal, and L. Wang, "Better never than late: Timely edge video analytics over the air," in ACM Conference on Embedded Networked Sensor Systems (ACM SenSys AIChallengeIoT), 2021, pp. 426-432.
- V. Nigade, L. Wang, and H. Bal, "Clownfish: Edge and cloud symbiosis for video stream analytics," in IEEE/ACM Symposium on Edge Computing (SEC), 2020, pp. 55–69.
- E. Van Der Kouwe, V. Nigade, and C. Giuffrida, "Dangsan: Scalable use-after-free detection," in ACM European Conference on Computer Systems (EuroSys), 2017, pp. 405–419.

Journal Articles

- V. Nigade, P. Bauszat, H. Bal, and L. Wang, "Inference serving with end-to-end latency slos over dynamic edge networks," Real-Time Systems, pp. 1-52, 2024.
- R. De Haan, J. Lim, S. A. Van der Burg, A. W. Pieneman, V. Nigade, H. D. Mansvelder, and C. P. De Kock, "Neural representation of motor output, context and behavioral adaptation in rat medial prefrontal cortex during learned behavior," Frontiers in Neural Circuits, vol. 12, p. 75, 2018.

Patents

V. Nigade and M. Soundalgekar, Distributed replication in cluster environments, US Patent 9,600,553, 2017.

Awards & Grants

Dec. 2022	Outstanding Paper Award, IEEE RTSS
Mar. 2022	NVIDIA Academic Hardware Grant Two A30 tensor core GPUs.
2014 – 2016	VUFP Scholarship, Vrije Universiteit Amsterdam, The Netherlands A full merit scholarship for strongly motivated students.
2011 – 2014	Seven employee awards at Symantec Corporation, Pune, India Including innovation awards, customer-centric awards, and the best study paper award.
2007 – 2011	Four programming and project competition awards during B.Tech.

Open Source

Jellyfish	A Soft Real-Time Inference Serving System
Clownfish	Edge and Cloud Symbiosis for Video Stream Analytics https://github.com/vuhpdc/clownfish
DangSan	Efficiently Detecting Use-After-Free Exploits in Multi-Threaded Applications

Open Source (continued)

Whisker

Software to control the operational characteristics of a behavioural apparatus

https://github.com/vnigade/Whisker

Academic Services

Technical Reviewer

Dec. 2023 | IEEE/ACM UCC INTEL4EC

Apr. 2023 Digital Enablers of the Computing Continuum Systems, NWO ICT Open

Dec. 2022 | IEEE/ACM UCC INTEL4EC

Thesis Supervision

Aug. 2022 Rishikumar Radhakrishnan, M.Sc. Project, Vrije Universiteit Amsterdam

Teaching

2020 – 2021 📕 Teaching Assistant, Advanced Network Programming, Vrije Universiteit Amsterdam

Skills

Programming & Scripting Languages

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Frameworks & Libraries Version Control Systems

Editors & IDEs

C/C++, Python, Shell (Bash), Java (novice)

Pytorch, Tensorflow, OpenCV, gRPC, Gstreamer

Git, CVS (a long time back)

■ Vim, VS Code

References

Available on Request

[CV last modified on May 19, 2024]