

# Nachiappan Valliappan

PhD Student  
Computer Science and Engineering  
Chalmers University

Åvägen 6B  
Göteborg, 412 50  
Sweden

✉ [nacval@chalmers.se](mailto:nacval@chalmers.se)

🔗 [nachivpn.me](https://nachivpn.me)

🎓 [scholar.google.com/\[...\]](https://scholar.google.com/[...])

## Research Interests

- Programming languages: theory, semantics and implementation.
- Logic and type systems: proof theory, modal logic, and type inference.
- Program transformation: normalization and type-directed partial evaluation.
- Security: Language-based security and information-flow control analysis.

## Education

### 2016-2018. Master of Science

Computer Science and Engineering  
Average grade: 4.8/5  
Chalmers University, Sweden.

### 2010-2014. Bachelor of Technology

Computer Science and Engineering  
National Institute of Technology  
Calicut, India.

## Current

Sep 2018 – Now. **PhD student.** Chalmers University, Sweden.

Supervisor: Prof. Alejandro Russo.

Thesis topic: extensible normalization and partial evaluation for modal lambda calculi and embedded domain-specific languages.

## Work Experience

Jun. – Aug. 2017. **Summer Student.** CERN, Switzerland.

Developed a software framework for delegating and distributing accelerator commissioning tasks for the Large Hadron Collider.

Aug. – Dec 2016. **Freelance Developer.** Independent, India.

Developed backend systems for mobile APIs.

Jun. 2015 – Aug 2016. **Software Engineer.** Acrodelon, India.

Worked on research and development across projects focusing on distributing and scaling backend systems using cloud services.

Jun. 2014 – May 2015. **Software Engineer.** ShieldSquare, India.

Developed distributed backend systems to analyze and detect patterns of malicious bot behaviour in network traffic.

## Teaching Experience

2018 – Now. **Teaching Assistant.** Chalmers University, Sweden.

2020 – Now. Finite automata and formal languages.

2019 – Now. Testing, debugging and verification.

2019 – 2022. Logic in computer science.

2018 – 2018. Data structures.

## Awards and Grants

Sep. 2022. *Distinguished paper award* at the International Conference on Functional Programming 2022, ACM Council.

Mar. 2022. *Research visit grant*, Ericsson Research Foundation.

Aug. 2018. *Lars Pareto travel grant*, University of Gothenburg.

## Publications

7. Nachiappan Valliappan, Fabian Ruch, and Carlos Tomé Cortiñas. “Normalization for fitch-style modal calculi”. In: *Proceedings of the ACM on Programming Languages* 6.ICFP (2022), pp. 772–798. DOI: [10.1145/3547649](https://doi.org/10.1145/3547649). **Distinguished paper award.**
6. Nachiappan Valliappan, Alejandro Russo, and Sam Lindley. “Practical normalization by evaluation for EDSLs”. In: *Proceedings of the 14th ACM SIGPLAN International Symposium on Haskell*. 2021, pp. 56–70. DOI: [10.1145/3471874.3472983](https://doi.org/10.1145/3471874.3472983).
5. Nachiappan Valliappan et al. “Towards secure IoT programming in Haskell”. In: *Proceedings of the 13th ACM SIGPLAN International Symposium on Haskell*. 2020, pp. 136–150. DOI: [10.1145/3406088.3409027](https://doi.org/10.1145/3406088.3409027).
4. Carlos Tomé Cortiñas and Nachiappan Valliappan. “Simple Noninterference by Normalization”. In: *Proceedings of the 14th ACM SIGSAC Workshop on Programming Languages and Analysis for Security*. 2019, pp. 61–72. DOI: [10.1145/3338504.3357342](https://doi.org/10.1145/3338504.3357342).
3. Nachiappan Valliappan and Alejandro Russo. “Exponential Elimination for Bicartesian Closed Categorical Combinators”. In: *Proceedings of the 21st International Symposium on Principles and Practice of Declarative Programming*. 2019, pp. 1–13. DOI: [10.1145/3354166.3354185](https://doi.org/10.1145/3354166.3354185).
2. Nachiappan Valliappan et al. “Towards adding variety to simplicity”. In: *International Symposium on Leveraging Applications of Formal Methods*. Springer. 2018, pp. 414–431. DOI: [10.1007/978-3-030-03427-6\\_31](https://doi.org/10.1007/978-3-030-03427-6_31).
1. Nachiappan Valliappan and John Hughes. “Typing the wild in Erlang”. In: *Proceedings of the 17th ACM SIGPLAN International Workshop on Erlang*. 2018, pp. 49–60. DOI: [10.1145/3239332.3242766](https://doi.org/10.1145/3239332.3242766).

## Research Visits

Oct. 2022. *University of Bristol*. Invited by Dr. Meng Wang. 3 day visit.

Mar. 2022. *University of Edinburgh*. Hosted by Dr. Sam Lindley. 3 month visit.

## Invited Talks

Oct. 2022. *Normalization for Fitch-Style Modal Calculi*. Programming languages seminar. University of Bristol.

Sep. 2022. *Normalization with Free Extensions*. Programming languages seminar. University of Edinburgh.

Sep. 2021. *Normalization for Fitch-Style Modal Calculi*. Logic seminar. University of Gothenburg.

## Professional Activities

Reviewing activities at conferences (c), journals (j), symposia (s), and workshops (w).

- Artifact Evaluation committee: POPL 2022 (c), ICFP 2021 (c), ICFP 2020 (c).
- Subreviewer: TCS 2022 (j), ESOP 2022 (c), LSFA 2022 (w), JFP 2020 (j), SAC 2020 (s), LPAR 2018 (c).
- Reviewer: MSCS 2022 (j).