

## RESEARCH INTERESTS

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I am broadly interested in interactive proof assistants, type theory and programming languages, program verification and synthesis. My research agenda revolves around developing language-based techniques to make it easier to write programs that require strong guarantees of correctness and security.

## EDUCATION

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- Purdue University  
*Ph.D. in Computer Science, advised by Benjamin Delaware* 2017 – 2024
- Sichuan University  
*B.S. in Computer Science (top 1%)* 2009 – 2013

## PUBLICATIONS

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Note: In recent years, the programming languages research community has been developing an additional review process for software artifacts that accompany a paper. This optional process typically awards the following badges:

<sup>A</sup> indicates the artifact is available on a publicly accessible archival repository,

<sup>F</sup> indicates the artifact was documented, consistent, complete, and exercisable with respect to the claims in the paper,

<sup>R</sup> indicates the artifact was of particularly high quality, such that reuse and repurposing is facilitated, and

<sup>V</sup> indicates the artifact can be used to replicate the main results of the paper.

- Taypsi: Static Enforcement of Privacy Policies for Policy-Agnostic Oblivious Computation  
**Qianchuan Ye** and Benjamin Delaware  
*Proceedings of the 2024 ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2024)*  
<https://doi.org/10.1145/3649861> <sup>ARV</sup>
- A HAT Trick: Type-based Verification of Representation Invariants Using Symbolic Finite Automata  
Zhe Zhou, **Qianchuan Ye**, Benjamin Delaware and Suresh Jagannathan  
*Proceedings of the 45th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2024)*  
<https://doi.org/10.1145/3656433> <sup>AR</sup>
- Taype: A Policy-Agnostic Language for Oblivious Computation  
**Qianchuan Ye** and Benjamin Delaware  
*Proceedings of the 44th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2023)*  
<https://doi.org/10.1145/3591261> <sup>AR</sup>
- Oblivious Algebraic Data Types  
**Qianchuan Ye** and Benjamin Delaware  
*Proceedings of the 49th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2022)*  
<https://doi.org/10.1145/3498713> <sup>AR</sup>
- RHLE: Modular Deductive Verification of Relational  $\forall\exists$  Properties  
Robert Dickerson, **Qianchuan Ye**, Michael K. Zhang, and Benjamin Delaware  
*Proceedings of the 20th Asian Symposium on Programming Languages and Systems (APLAS 2022)*  
[https://doi.org/10.1007/978-3-031-21037-2\\_4](https://doi.org/10.1007/978-3-031-21037-2_4) <sup>AFR</sup>
- HACCLE: Metaprogramming For Secure Multi-party Computation  
Yuyan Bao, Kirshanthan Sundararajah, Raghav Malik, **Qianchuan Ye**, Christopher Wagner, Fei Wang, Mohammad Hassan Ameri, Donghang Lu, Alexander Seto, Benjamin Delaware, Roopsha Samanta, Aniket Kate, Christina Garman, Jeremiah Blocki, Pierre-David Letourneau, Benoit Meister, Jonathan Springer, Tiark Rompf, Milind Kulkarni

*Proceedings of the 20th ACM SIGPLAN International Conference on Generative Programming: Concepts and Experiences (GPCE 2021)*

<https://doi.org/10.1145/3486609.3487205>

- **Narcissus: Correct-by-Construction Derivation of Decoders and Encoders from Binary Formats**  
Benjamin Delaware, Sorawit Suriyakarn, Clément Pit-Claudel, **Qianchuan Ye**, and Adam Chlipala  
*Proceedings of the 24th ACM SIGPLAN International Conference on Functional Programming (ICFP 2019)*  
<http://doi.org/10.1145/3341686> <sup>AF</sup>
- **A Verified Protocol Buffer Compiler**  
**Qianchuan Ye** and Benjamin Delaware  
*Proceedings of the 8th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP 2019)*  
<http://doi.org/10.1145/3293880.3294105>

## WORKSHOPS

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- **Scrap your boilerplate definitions in 10 lines of Ltac!**  
**Qianchuan Ye** and Benjamin Delaware  
*The Eighth International Workshop on Coq for Programming Languages (CoqPL 2022)*  
<https://github.com/ccyip/coq-idt>

## DISSERTATIONS

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- **Language-Based Techniques for Policy-Agnostic Oblivious Computation**  
**Qianchuan Ye**  
*PhD Dissertation, Purdue University, April 2024*  
<https://doi.org/10.25394/pgs.25676727.v1>

## ACADEMIC SERVICE

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Artifact Evaluation Committee Member	<i>ICFP 2024</i>
External Reviewer	<i>CPP 2022</i>
Artifact Evaluation Committee Member	<i>ICFP 2022</i>
Artifact Evaluation Committee Member	<i>POPL 2020</i>

## TEACHING

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Teaching Assistant, CS565: Programming Languages @Purdue	<i>Fall 2018 and Fall 2020</i>
Teaching Assistant, CS182: Foundations of Computer Science @Purdue	<i>Fall 2017, Spring 2018 and Spring 2021</i>

## INDUSTRIAL EMPLOYMENT

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- **TP-Link Technologies Co., Ltd.**  
*Software Engineer* *2013 – 2017*  
Embedded system development for networking devices; worked on Linux kernel, drivers and bootloaders, network protocols for roaming and QoS, software framework for routers, etc.

## AWARDS AND HONORS

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Phi Kappa Phi	<i>2024</i>
Bilsland Dissertation Fellowship	<i>2023 – 2024</i>
ACM SIGPLAN PAC Grant	<i>2022</i>
Purdue Graduate School Summer Research Grant	<i>2021</i>
China National Scholarship	<i>2012</i>
Third Prize, China National Mathematics Olympiad	<i>2008</i>