Xuan Bi

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Research Fields   Programming Language Design, Type Systems, Functional Programming, Gradual Typing, Program Verification

Education

The University of Hong Kong, Hong Kong, China

Ph.D. in Computer Science   Sep. 2014 - Nov. 2018

- Thesis Topic: *Disjoint Intersection Types: Theory and Practice*
- Advisors: Dr. Bruno C. d. S. Oliveira and Prof. T.H. Tse

Zhejiang University, Hangzhou, China

B.S. in Computer Science and Engineering   Sep. 2010 - Aug. 2014

- Cum. GPA: 3.9 out of 4.0
- He Zhijun Honor Class
- Thesis Advisor: Prof. Huajun Chen

Simon Fraser University, Vancouver, Canada

Exchange in Computing Science   Sep. 2012 - Apr. 2013

- Cum. GPA: 3.9 out of 4.0

Working Experience

The University of Hong Kong, Hong Kong, China

Part-time Research Assistant in Computer Science   Sep. 2018 - Nov. 2018

Publications

1. Ningning Xie, **Xuan Bi**, Bruno C. d. S. Oliveira, Tom Schrijvers. **Consistent Subtyping for All.** *To appear in the Transactions on Programming Languages and Systems (TOPLAS 2019).*

2. **Xuan Bi**, Bruno C. d. S. Oliveira, Tom Schrijvers. **The Essence of Nested Composition.** *In European Conference on Object-Oriented Programming (ECOOP 2018).*

3. **Xuan Bi**, Bruno C. d. S. Oliveira. **Typed First-Class Traits.** *In European Conference on Object-Oriented Programming (ECOOP 2018).*

4. Ningning Xie, **Xuan Bi**, Bruno C. d. S. Oliveira. **Consistent Subtyping for All.** *In European Symposium on Programming (ESOP 2018).*

5. Yanpeng Yang, **Xuan Bi**, Bruno C. d. S. Oliveira. **Unified Syntax with Iso-Types.** *In Asian Symposium on Programming Languages and Systems (APLAS 2016).*

6. Tomas Tauber, **Xuan Bi**, Zhiyuan Shi, Weixin Zhang, Huang Li, Zhenrui Zhang, Bruno C. d. S. Oliveira. **Memory-efficient Tail Calls in the JVM with Imperative Functional Objects.** *In Asian Symposium on Programming Languages and Systems (APLAS 2015).*

7. Xi Chen, Huajun Chen, **Xuan Bi**, Peiqin Gu, Jiaoyan Chen, Zhaohui Wu. **BioTCM-SE: A Semantic Search Engine for the Information Retrieval of Modern Biology and Traditional Chinese Medicine.** *Comp. Math. Methods in Medicine 2014.*

DRAFTS

1. **Xuan Bi**, Ningning Xie, Bruno C. d. S. Oliveira, Tom Schrijvers. **Distributive Disjoint Polymorphism for Compositional Programming.** *Submitted to ESOP'19.*

PROJECTS

GPC: **G**radually **P**olymorphic **C**alculus
- Github link
- We proposed the first design of combining gradual typing with implicit higher-rank polymorphism. **GPC** is implemented in Haskell.

SEDEL: Type system for first-class traits
- Github link
- We proposed the first design of typed first-class traits with support for dynamic inheritance, abstract methods, etc. **SEDEL** is implemented in Haskell.

NeColus: **Ne**sted **Co**mposition calcu**lus**
- Github link
- We proposed a simple calculus that features disjoint intersection types and nested composition. Type safety and coherence are verified in the Coq proof assistant.

FCore: Research middleware compiler from System F-based languages to Java
- Github link
- We proposed a JVM implementation of System F with support for tail-call elimination. **FCore** is implemented in Haskell and Java.

PROGRAMMING
SKILLS

Working Knowledge: Haskell • Java • Coq
Basic Knowledge: Scala • Agda • Idris • Racket • C • Python

TEACHING

Teaching Assistant   Fall 2017, Spring 2017
COMP 3258: Functional Programming
Instructor: Dr. Bruno C. d. S. Oliveira

Teaching Assistant   Fall 2016, Spring 2015, Fall 2014
COMP 3259: Principles of Programming Languages
Instructor: Dr. Bruno C. d. S. Oliveira

PROFESSIONAL
SERVICE

- ESOP 2017, subreviewer
- SBLP 2016, subreviewer

SCHOLARSHIPS &
AWARDS

- Conference Support for Research Postgraduate Students   Apr. 2018
- Postgraduate Scholarship (PGS)   Sep. 2014 - Aug. 2018

EXTRACURRICULAR
EXPERIENCE

ECOOP   Netherlands, 2018
- **Student volunteer**

Morgan Stanley   Hong Kong, 2017
- **Lead student helper**, in charge of coordinating student tasks for the talk by Dr. Bjarne Stroustrup, Father of C++

DeepSpec Summer School   USA, 2017
- **Funded participant** of the first DeepSpec Summer School on Verified Systems

Hong Kong Functional Programming Meetup   Hong Kong
- **Invited speaker**, talk titled "Programming with dependent types in Idris"
- **Invited speaker**, talk titled "New Buzz in Haskell Reloaded"