



Baber Rehman

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SUMMARY

I wish to play the leading role in the well-being of the humanity. Love to explore what's happening in the box instead of seeing things as a black box. Have a quality to work and adjust in dynamic environments.

ACADEMICS

2018 - present PhD in Computer Science at **University of Hong Kong**, Hong Kong
Research Area: Programming Languages, Type Systems,
Functional Programming, Object-oriented Programming
Supervisor: [Dr. Bruno C. d. S. Oliveira](#)

2011 - 2015 Bachelor's Degree at **University of Punjab**, Lahore, Pakistan (CGPA: 3.81/4.0)
Major: Computer Science

RESEARCH SUMMARY

Programming languages define the constructs to instruct the machines. Various programming languages paradigms provide disparate styles of talking to the machines, such as imperative programming and functional programming. It has become essential with the growing need of technological transformation and pressing automation to design user-oriented, accessible, and robust programming languages. The more errors a programming language captures before compilation, the robust the program is. Such a language provides some static guarantees that the programs may not terminate abnormally at runtime. The study of type systems is an area of practical research interest to build robust programs. This is reflected by the fact that *a sound type system guarantees the absence of certain (abnormal) program behaviors*.

My current research revolves around type systems. Specifically, I am working on the integration of intersection types and union types. Intersection and union types are powerful features available in many modern programming languages such as Scala, Typescript, and Ceylon. The adequacy of intersection and union types lies in the fact that they naturally are able to encode various advance programming constructs, for example, function overloading, multiple interface inheritance, and nested composition.

PROFESSIONAL EXPERIENCE

Resident Tutor Jan 2021 - present
New College, The University of Hong Kong

- Duties include to maintain a lively environment for the students and assist them where needed, both academically and socially. Main ethos of New College includes to produce responsible citizens of the world.
- Responsible for the photography team, web team, and news and media team

Junior Resident Tutor

Sep 2019 - Dec 2020

New College, The University of Hong Kong

- Duties include to maintain a lively environment for the students and assist them where needed, both academically and socially. Main ethos of New College includes to produce responsible citizens of the world

Senior Software Engineer (DevOps) – Team Lead

May 2017 - Aug 2018

CloudPlex PVT LTD, Lahore, Pakistan

- Lead one local team in Lahore and one remote team located in Argentina
- Conducted technical interviews of candidates for the backend team
- Held meetings with clients for requirement gathering, demos, and delivery
- Build a cloud platform to automate cloud orchestration and deployment
- Worked with AWS and Azure cloud services including VPC, S3, EC2, VNet
- Worked on automating the configuration of firewalls (PfSense and Fortinet)
- Tools and technologies: Golang, Chef, Ansible, Networking, Docker, Shell scripting, Cloud Computing

Software Engineer (DevOps)

Jun 2015 - Apr 2017

Platalytics Inc. (CloudPlex PVT LTD), Lahore, Pakistan

- Conducted technical interviews of candidates for the backend team
- Held meetings with clients for requirement gathering, demos, and delivery
- Build a cloud platform to automate cloud orchestration and deployment
- Worked with AWS and Azure cloud services including VPC, S3, EC2, VNet
- Worked on automating the configuration of firewalls (PfSense and Fortinet)
- Tools and technologies: Golang, Chef, Ansible, Networking, Docker, Shell scripting, Cloud Computing

Visiting lecturer

Oct 2015 - Jun 2016

University of the Punjab, Lahore, Pakistan

- Fall 2015: Computer organization and Assembly Language course
- Spring 2016: Enterprise Application Development course (C#/MVC4)

Intern

Jul 2014 - Sep 2014

Mentor Graphics, Lahore, Pakistan

- Worked in Java programming language and used eclipse as a tool
- Explored Java GUI library i.e. SWT
- Did debugging of source code of Sourcery Codebench (an eclipse based IDE used in Mentor Graphics) and removed few of its GUI bugs

Teacher Assistant

Oct 2013 - Jul 2015

University of the Punjab, Lahore, Pakistan

- Discrete Mathematics
- Data Structures and Algorithms
- Database Systems
- System Programming
- Enterprise Application Development

TECHNICAL SKILLS

Functional Programming	Coq Theorem Prover / Gallina
Golang	Amazon Web Service (EC2, VPC, S3, RDS)
Scala	Microsoft Azure (VNet, Virtual Machines)
Haskell	Computer Networking / VPC / VPN / PfSense
Chef / Ansible	Jenkins / Git
Docker / Kubernetes	Mongo DB / SQL
Bash / Python / Ruby	

COMMUNITY SERVICE

- ❖ Artifact Evaluation Committee ECOOP 2023
- ❖ Extended Review Committee ECOOP 2023
- ❖ Artifact Evaluation Committee POPL 2023
- ❖ Artifact Evaluation Committee APLAS 2022
- ❖ Artifact Evaluation Committee ECOOP 2022
- ❖ Extended Review Committee ECOOP 2022
- ❖ Student Helper PLDI 2021

SCHOLARSHIPS

- ❖ Funding by ACM PLMW@ICFP to attend ICFP'19 in Berlin, Germany
- ❖ Pilot Scheme Funding by the University of Hong Kong to attend OPLSS'19 in Eugene, USA
- ❖ Partial funding by OPLSS'19 to attend OPLSS'19 in Eugene, USA
- ❖ University Postgraduate Fellowship for 4-years PhD by the University of Hong Kong (2018 – 2022)
- ❖ Merit Base Scholarship three times by PUCIT, University of the Punjab

KEY ACHIEVEMENTS

- ❖ Promoted to Senior Software Engineer and Team Lead after two years of professional experience at Platalytics Inc., Lahore, Pakistan which normally takes three years.
- ❖ 2nd position (2/191) in BS Computer Science (2011 – 2015) at PUCIT, University of the Punjab, Lahore, Pakistan.
- ❖ 2nd position in Belal Hashmi programming competition SOFTEC'15 ACM-ICPC held in FAST-NU Lahore (Team Code:Threads).
- ❖ 2nd position in speed programming competition SOFTEC'14 ACM-ICPC held in FAST-NU Lahore (Team Code:Threads).
- ❖ 2nd position in speed programming competition APTA'14 held in GCU Lahore (Team Code:Threads).

PUBLICATIONS AND ARTIFACTS

- Baber Rehman, Xuejing Huang, Ningning Xie and Bruno C. d. S. Oliveira. 2022. “Union Types with Disjoint Switches”. In *European Conference on Object-Oriented Programming (ECOOP)*.
 - Baber Rehman, Xuejing Huang, Ningning Xie and Bruno C. d. S. Oliveira. 2022. “Union Types with Disjoint Switches (Artifact)”. In *European Conference on Object-Oriented Programming (ECOOP)*.
- Bruno C. d. S. Oliveira, Cui Shaobo and Baber Rehman. 2020. “The Duality of Subtyping”. In *European Conference on Object-Oriented Programming (ECOOP)*.
 - Bruno C. d. S. Oliveira, Cui Shaobo and Baber Rehman. 2020. “The Duality of Subtyping (Artifact)”. In *European Conference on Object-Oriented Programming (ECOOP)*.

REFERENCES

- 1) [Dr. Bruno C. d. S. Oliveira](#)
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The University of Hong Kong.
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- 2) [Prof. CHOW Y. M. Amy](#)
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Department of Social Work and Social Administration,
Master, New College, JCSV III,
The University of Hong Kong.
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- 3) [Mr. Asad Faizi](#)
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CloudPlex PVT LTD,
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