

# NODIR KODIROV

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## EDUCATION

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### University of British Columbia

*Ph.D. in Computer Science*

September 2013 - Present

*Vancouver, BC, Canada*

I am broadly interested in Systems research. Recently, I have been focusing on datacenter resource scheduling challenges, in particular for networked cloud applications. I have also done some work on constraint solvers and Virtual Network Functions.

### Konkuk University

*M.Sc. in Computer Science & Engineering*

September 2008 - August 2010

*Seoul, Republic of Korea*

Thesis: Enhancing eCos with EDF Scheduling and Lock-Free Buffer

Thesis advisor: Doo-Hyun Kim

### Tashkent University of Information Technologies

*Bachelor in Information & Communication*

September 2004 - June 2008

*Tashkent, Uzbekistan*

Thesis: Organization of Working with Confidential Information in Electronic Document Exchange

Thesis advisor: Rustam Khamdamov

## WORK EXPERIENCE

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### ZeroStack Inc.

*MTS Consulting Engineer*

September 2016 - November 2016

*Mountain View, CA, USA*

I continued my work on enterprise applications performance (in addition to my graduate study).

### ZeroStack Inc.

*MTS Intern; Enterprise Application QoS in OpenStack*

May 2016 - September 2016

*Mountain View, CA, USA*

I focused on enterprise workload performance in private cloud. I evaluated and improved performance of several applications, such as Hadoop, Memcache, Redis, MySQL and Jenkins, by improving OpenStack's Cinder storage scheduler. It mostly involved developing locality-aware volume placement in Cinder.

### ZeroStack Inc.

*MTS Consulting Engineer*

January 2016 - April 2016

*Mountain View, CA, USA*

I continued my work on OpenStack network and storage QoS (in addition to my graduate study).

### ZeroStack Inc.

*MTS Intern; OpenStack Networking*

May 2015 - December 2015

*Mountain View, CA, USA*

I mainly worked with Neutron. I evaluated different networking setups and fine-tuned them for performance and scalability. I also developed OpenStack network benchmarking tools.

### Electronics and Telecommunications Research Institute

*Member of Engineering Staff*

September 2010 - July 2013

*Daejeon, Republic of Korea*

### Cloud Data Center Networking project (March 2012 - July 2013)

I worked on a project to automate virtual machine networking setup. I contributed to the development of Edge Control Protocol (ECP), and Virtual Station Interface Discovery and Configuration Protocol (VDP) on [ZebOS Network Platform](#). These protocols are based on [IEEE 801.1Qbg](#) standard.

## Cloud Computing Management project (September 2010 - March 2012)

I mostly evaluated cloud management frameworks, such as OpenStack, OpenNebula, and Eucalyptus.

## RESEARCH EXPERIENCE

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### Graduate Teaching and Research Assistant

*Systopia Lab*

September 2013 - Present

*University of British Columbia*

I was a TA for following courses at UBC, CPSC 210: Software Construction, CPSC 317: Internet Computing, and CPSC 416: Distributed Systems. I am/was also a research assistant for many lab projects, some of which ended up getting published.

### Research Assistant

*Embedded Computing Lab*

September 2008 - August 2010

*Konkuk University*

I developed a resource scheduling algorithm for the Real-time Operating System ([Embedded Configurable OS](#)) kernel, which was used at the unmanned helicopter. This work later became part of my masters thesis, and got published in a conference and a journal (the extended version).

### Research Assistant

*Department of Applied Mathematics and Informatics*

March 2008 - May 2008

*Moscow State University, Tashkent branch*

I designed and implemented secure document exchange system using custom cryptographic algorithm (Private Box Algorithm). This work became part of my undergraduate thesis.

### Research Assistant

*Department of Information Technologies*

January 2007 - February 2008

*Tashkent University of Information Technologies*

I designed and implemented new encryption algorithm: Private Box Algorithm. I also deployed various security tools on department LAN, including public/private key infrastructure, and firewall.

## AWARDS & HONOURS

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### Four Year Doctoral Fellowship

*for International PhD students*

September 2014 - September 2019

*by University of British Columbia, Canada*

Guaranteed financial support of at least CAD \$26,000/year plus tuition for four years of PhD study.

### Korean Government IT Scholarship

*for International Graduate Students*

September 2008 - August 2010

*by Institute for Information Technology Advancement, Korea*

Fully-funded master degree education at Konkuk University (USD \$32,000/year).

### Beruni Scholarship for Outstanding Student in Information Tech.

*in Science & Technology*

Nov. 2007 - June 2008

*by Ministry of Higher & Secondary Education, Uzbekistan*

The most prestigious science scholarship in the nation. It provided fully-funded, unconditional admission at any postgraduate university in Uzbekistan.

### Runner-up for the Presidential Award

*in Information Technologies*

November 2007

*by Ministry of Higher & Secondary Education, Uzbekistan*

I was one of three finalists to compete for the Presidential Award between undergraduate students in information technology major. Only one student is awarded each year.

### Scholarship for Fully-funded Undergraduate Study

*merit-based; uses ranking in the national entrance examination*

September 2004 - June 2008

*by Uzbekistan government*

A fully-funded bachelors degree education in Tashkent University of Information Technologies.

## SELECTED PUBLICATIONS

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See longer version in my Google Scholar [profile](#) and even longer in [knodir.github.io/publications](https://knodir.github.io/publications).

- [Parking Packet Payload with P4](#), Swati Goswami, **Nodir Kodirov**, Craig Mustard, Ivan Beschastnikh, Margo Seltzer, The 16th International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2020.
- [VNF Chain Allocation and Management at Data Center Scale](#), **Nodir Kodirov**, Sam Bayless, Fabian Ruffy, Ivan Beschastnikh, Holger H. Hoos, Alan J. Hu. The 14th ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS), 2018.
- [Scalable Constraint-Based Virtual Data Center Allocation](#), Sam Bayless, **Nodir Kodirov**, Ivan Beschastnikh, Holger H. Hoos, Alan J. Hu. International Joint Conference on Artificial Intelligence (IJCAI'17), 2017.

## PRESENTATIONS AND TALKS

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### **VNF Chain Allocation and Management at Data Center Scale**

August 23, 2019 at **MSRA** (Microsoft Research Asia), August 22, 2018 at **UWaterloo**; July 25, 2018 at **CMU**; July 23, 2018 at **ANCS'18**.

## COLLABORATION & SERVICE

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I had an opportunity to work with these amazing students: Haley Li, Syed Mubashir Iqbal, Marlon Ou, Lise Savard, Omar Sabry, Alex Crooks, and Vincent Hui.

I also subreviewed paper(s) for following conferences: [NSDI 2019](#), [ICDCS 2018](#), and [ISSRE 2017](#).