

# Michio Honda

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<b>INTERESTS</b>	<b>Operating Systems, Networking, Distributed Systems, Machine Learning</b>
<b>EDUCATION</b>	<b>Keio University</b> , Tokyo Japan
	<b>Ph.D.</b> in Graduate School of Media and Governance <span style="float: right;">Apr 2009 – Mar 2012</span> Program: Cyber Informatics Thesis: The Internet is not an Internet—Principles, Evasion and Implications for Transport Protocols
	<b>M.S.</b> in Graduate School of Media and Governance <span style="float: right;">Apr 2007 – Mar 2009</span> Program: Cyber Informatics Thesis: Bidimensional-Probe Multipath Congestion Control for Shared Bottleneck Fairness
	<b>B.S.</b> in Faculty of Environment and Information Studies <span style="float: right;">Apr 2003 – Mar 2007</span> Thesis: Fast Transport Layer Handover Using Single Wireless Interface
<b>WORK EXPERIENCE</b>	<b>Senior research scientist</b> , NEC Laboratories Europe, Heidelberg, Germany <span style="float: right;">Nov 2016 – present</span> <b>Software engineer</b> , NetApp, Munich, Germany <span style="float: right;">Dec 2014 – Oct 2016</span> <b>Research scientist</b> , NEC Laboratories Europe, Heidelberg, Germany <span style="float: right;">Jul 2012 – Nov 2014</span> <b>Part-time lecturer</b> , Keio University, Japan <span style="float: right;">Apr 2011 – Mar 2012</span>
<b>RESEARCH EXPERIENCE</b>	<b>Visiting student researcher</b> , University College London (UCL), London, UK <span style="float: right;">Apr 2010 – Sep 2010</span> Advisor: Prof. Mark Handley Focus: Middlebox, Multipath Transport Protocol.
	<b>Research intern</b> , Nokia Research Center, Espoo, Finland <span style="float: right;">Jul 2008 – Jan 2009</span> Advisor: Dr. Lars Eggert Focus: Multipath Transport Protocol.
<b>AWARDS</b>	<b>Best paper award</b> , ACM SOSR'15 <span style="float: right;">Jun 2015</span> <b>Community award</b> , USENIX NSDI'12 <span style="float: right;">Apr 2012</span> <b>Applied Networking Research Prize (ANRP)</b> , 82th IETF meeting <span style="float: right;">Nov 2011</span>
<b>RECENT RESEARCH</b>	<b>GrepStore: Scalable Graph Representation Learning</b> <span style="float: right;">Poster at OSDI'18</span> GrepStore aims for enabling graph representation learning that learns representation of graph structured data at scale. In particular, it explores system architecture that efficiently handles graph data that do not fit in the main memory, and parallelize and distribute computes by exploiting opportunities in modern graph representation learning algorithms.
	<b>PASTE: A Network Stack for Non-Volatile Main Memory</b> <span style="float: right;">NSDI'18, HotNets'16, ATC'16</span> PASTE is a network stack that offers unified abstractions of network and non-volatile main memory. It fills the gap between the storage and network stacks designed in isolation, and solves the problem with the costs of moving and transforming data between these stacks that are significant for non-volatile main memory that offers fast, byte-addressable persistence.
	<b>mSwitch: A Highly-Scalable, Modular Software Switch</b> <span style="float: right;">SOSR'15, CCR'14, NSDI'14, SoCC'17</span> mSwitch solves the scalability problem of existing software switches that is crucial to consolidate a large number of VMs or virtualized network functions by a novel packet forwarding algorithm and streamlined data path. It was initially designed for ClickOS, a tiny unikernel that runs Click, and MultiStack, a framework that runs multiple user-space network stacks.
	<b>Middlebox Measurement for TCP Extensibility</b> <span style="float: right;">IMC'11, NSDI'12</span> This work was motivated by exploring viable design of Multipath TCP. It transmits various non-existent TCP traffic that mimics possible future TCP extensions to our server and examines on-path actions to the packets. This is the first work that examines in-depth middlebox behaviour prevalent in the Internet.
<b>PUBLICATIONS</b>	Maurice Bailieu, Jörg Thalheim, Pramod Bhatotia, Christof Fetzer, <b>Michio Honda</b> and Kapil Vaswani, “ <i>Speicher: Securing LSM-based Key-Value Stores using Shielded Execution</i> ”, USENIX Conference on File and Storage Technologies ( <b>FAST</b> ), Feb 2019.
	Salvatore Pontarelli, Roberto Bifulco, Marco Bonola, Carmelo Cascone, Marco Spaziani, Valerio Bruschi, Davide Sanvito, Giuseppe Siracusano, Antonio Capone, <b>Michio Honda</b> , Felipe Huici and Giuseppe Bianchi, “ <i>FlowBlaze: Stateful Packet Processing in Hardware</i> ”, USENIX Symposium on Networked Systems Design and Implementation ( <b>NSDI</b> ), Feb 2019.

**Michio Honda**, Giuseppe Lettieri, Lars Eggert and Douglas Santry, “*PASTE: A Network Programming Interface for Non-Volatile Main Memory*”, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), Apr 2018.

Yutaro Hayakawa, Lars Eggert, **Michio Honda** and Douglas Santry, “*Prism: A Proxy Architecture for Datacenter Networks*”, ACM Symposium on Cloud Computing (**SoCC**) (vision paper), Sep 2017.

Kenichi Yasukata, Felipe Huici, Vincenzo Maffione, Giuseppe Lettieri and **Michio Honda**, “*HyperNF: Building a High Performance, High Utilization and Fair NFV Platform*”, ACM Symposium on Cloud Computing (**SoCC**), Sep 2017.

Simon Kuenzer, Anton Ivanov, Filipe, Manco, Jose Mendes, Yuri Volchkov, Florian Schmidt, Kenichi Yasukata, **Michio Honda** and Felipe Huici, “*Unikernels Everywhere: The Case for Elastic CDNs*”, ACM International Conference on Virtual Execution Environments (**VEE**), Apr 2017.

**Michio Honda**, Lars Eggert and Douglas Santry, “*PASTE: Network Stacks Must Integrate with NVMM Abstractions*”, ACM Workshop on Hot Topics in Networks (**HotNets**), Nov 2016.

Kenichi Yasukata, **Michio Honda**, Douglas Santry and Lars Eggert, “*StackMap: Low-Latency Networking with the OS Stack and Dedicated NICs*”, USENIX Annual Technical Conference (**ATC**), Jun 2016.

**Michio Honda**, Felipe Huici, Giuseppe Lettieri and Luigi Rizzo, “*mSwitch: A Highly-Scalable, Modular Software Switch*”, ACM SIGCOMM Symposium on SDN Research (**SOSR**), Jun 2015. **Best paper award**

**Michio Honda**, Felipe Huici, Costin Raiciu, Joao Araujo and Luigi Rizzo, “*Rekindling Network Protocol Innovation with User-Level Stacks*”, ACM SIGCOMM Computer Communication Review (**CCR**), Apr 2014.

Joao Martins, Mohamed Ahmed, Costin Raiciu, Vladimir Olteanu, **Michio Honda**, Roberto Bifulco and Felipe Huici, “*ClickOS and the Art of Network Function Virtualization*”, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), Apr 2014.

Costin Raiciu, Christoph Paasch, Sebastien Barre, Alan Ford, **Michio Honda**, Fabien Duchene, Olivier Bonaventure and Mark Handley, “*How Hard Can It Be? Designing and Implementing a Deployable Multipath TCP*”, USENIX Symposium on Networked Systems Design and Implementation (**NSDI**), Apr 2012. **Community Award**

**Michio Honda**, Yoshifumi Nishida, Costin Raiciu, Adam Greenhalgh, Mark Handley and Hideyuki Tokuda, “*Is it Still Possible to Extend TCP?*” ACM Internet Measurement Conference (**IMC**), Nov 2011. **Applied Networking Research Prize**

**Michio Honda**, Yoshifumi Nishida, Pasi Sarolahti and Lars Eggert, “*Multipath Congestion Control for Shared Bottleneck*” International Workshop on Protocols for Future, Large-Scale Diverse Network Transports (**PFLDNeT**), May 2008.

**Michio Honda**, Jin Nakazawa, Yoshifumi Nishida, Masahiro Kozuka and Hideyuki Tokuda, “*A Connectivity-Driven Retransmission Scheme Based On Transport Layer Readdressing*”, IEEE International Conference on Distributed Computing Systems (**ICDCS**), Jun 2008.

**POSTERS**

**Michio Honda** and Mathias Niepert, “*GrepStore: Scaling Graph Representation Learning*”, USENIX Symposium on Operating System Design and Implementation (OSDI), Oct 2018.

**Michio Honda**, Felipe Huici and Luigi Rizzo, “*MiniStack: Operating System Support for Fast User-space Network Protocols*”, USENIX Symposium on Operating System Design and Implementation (OSDI), Oct 2012.

**SERVICE**

<b>ACM/IEEE SC, Program Committee</b>	2019
<b>USENIX ATC, Program Committee</b>	2017, 2018
<b>ACM/IEEE ANCS, Program Committee</b>	2018
<b>ACM SOSR, Program Committee</b>	2018
<b>ACM EuroDW, Program Committee</b>	2018
<b>ACM/IEEE ToN, Reviewer</b>	2017–2018
<b>ACM SOSP poster, Program Committee</b>	2013

**TEACHING**

**Data Structures and Programming**, Keio University Fall 2011

	<b>Fundamentals of Information Technology</b> , Keio University	Spring 2011
<b>STUDENT</b>	Yutaro Hayakawa, Master Thesis, Keio University	Fall 2018
<b>MENTORING</b>	Nanako Momiyama, Bachelor Thesis, Keio University	Fall 2016
	Yutaro Hayakawa, Bachelor Thesis, Keio University	Fall 2016
	Kenichi Yasukata, Master Thesis, Keio University	Fall 2015
<b>GRANTS</b>	<b>Research Fellowship for Young Scientists (DC1)</b> Japan Society for the Promotion of Science, 9.2M JPY	Apr 2009 – Mar 2012
	<b>Excellent Young Researcher Overseas Visit Program</b> Japan Society for the Promotion of Science, 1M JPY	Apr 2010
	<b>Young Leader Scholarship</b> Keio University, 1M JPY	Apr 2009
<b>R&amp;D</b>	<b>Fed4IoT</b> (H2020 No. 814918)	Jul 2018 – present
<b>COLLABORATIONS</b>	The Federation for IoT (Fed4IoT) project aims at integrating heterogeneous IoT platforms and devices by virtualizing resources at multiple levels, including devices, platforms and information. Project volume is € 3 million in total.	
	<b>SSICLOPS</b> (H2020 No. 644866)	Feb 2014 – Jan 2018
	The Scalable and Secure Infrastructures for Cloud Operations (SSICLOPS) focuses on cloud networking techniques in software-defined data centers and across wide-area networks. Project volume is € 7 million.	
<b>OPEN SOURCE</b>	<b>PASTE</b>	<a href="https://micchie.github.io/paste/">https://micchie.github.io/paste/</a>
<b>CONTRIBUTION</b>	netmap	mSwitch and various features <a href="https://github.com/luigirizzo/netmap">https://github.com/luigirizzo/netmap</a>
	MultiStack	<a href="https://github.com/sysml/multistack">https://github.com/sysml/multistack</a>
	Linux kernel	SCTP extensions <a href="https://www.kernel.org/">https://www.kernel.org/</a>
	FreeBSD kernel	mSwitch and SCTP extensions <a href="https://www.freebsd.org/">https://www.freebsd.org/</a>
<b>REFERENCES</b>	<b>Prof. Luigi Rizzo</b>	Università di Pisa and Google
	<b>Dr. Lars Eggert</b>	NetApp
	<b>Prof. Mark Handley</b>	University College London

[CV compiled on 2018-12-24]