Patrik János Braun

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EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge, MA, USA

- Fulbright Visiting Student Reasearcher — Sep 2017 – Present
  - Group: The Network Coding and Reliable Communications Group
  - Supervisor: Prof. Murel Médard

Budapest University of Technology and Economics (BME), Budapest, Hungary

- Doctor of Philosophy (Ph.D.) in Software Engineering — Feb 2015 – Present
  - Department: Department of Automation and Applied Informatics (AUT)
  - Topic: Analyzing distributed data distribution methods with applied network coding
  - Supervisor: Dr. Péter Ekler
  - Focus: Network coding, peer-to-peer networks, data distribution, streaming, BitTorrent, web browsers.
- Master of Science (M.Sc.) in Software Engineering — Feb 2013 – Jan 2015
  - Department: Department of Automation and Applied Informatics
  - Thesis: The Analysis of Distributed Data Sharing with Network Coding Technology
  - Supervisor: Dr. Péter Ekler
  - Finished with Honours degree, degree GPA: 4.9 / 5.0 [1]
- Bachelor of Science (B.Sc.) in Software Engineering — Sep 2009 – Jan 2013
  - Participating in the German dual-degree[2] program with Karlsruhe Institute of Technology.
  - Thesis: Planning and development of a GWT application supporting homework management
  - Supervisor: Gábor Imre
  - Finished with Excellent degree, degree GPA: 4.65 / 5.0[1]

Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

- Master of Science (M.Sc.) in Software Engineering — Feb 2015
  - Degree extension from Karlsruhe Institute of Technology for the BME M.Sc degree as part of the dual degree program
- Bachelor of Science (B.Sc.) in Software Engineering — Oct 2011 – Feb 2012
  - Spending a semester as part of the German dual degree program.

OTHER RESEARCH EXPERIENCE

Dresden University of Technology, Dresden, Germany

- Guest Researcher — Jul 2015 – Sep 2015
  - Chair: Deutsche Telekom Chair of Communication Networks
  - Project: Investigations the methods of network coding enhanced, browser based Peer-to-Peer streaming
  - Supervisors: Prof. Frank Fitzek
  - Focus: Network coding; data distribution; peer-to-peer; environment: HMLT5, Javascript/Typescript, NodeJs.
- Guest Researcher at — Jul 2016 – Sep 2016
  - Chair: Deutsche Telekom Chair of Communication Networks
  - Project: Investigations the methods of creating Mobile Edge Cloud
  - Supervisors: Prof. Frank Fitzek
  - Focus: Agile, live cloud migration; environment: HMLT5, Javascript/Typescript, NodeJs.

PUBLICATIONS

JOURNAL PAPERS

[1] M. Sipos, <u>Patrik J. Braun</u>, Daniel E. Lucani, Frank H.P. Fitzek, Hassan Charaf "On the effectiveness of recoding-based repair in network coded distributed storage", in *Periodica Polytechnica Electrical Engineering and Computer Science*, 2017.

CONFERENCE PAPERS

[2] <u>Patrik J. Braun</u>, M. Sipos, P. Ekler, Frank H.P. Fitzek, "On the Performance Boost for Peer To Peer WebRTC-based Video Streaming with Network Coding", in *IEEE International Conference on Communications, ICC 2017*, Paris, France, May 2017.

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[1] Hungarian grading system goes from 1 to 5, where 5 is the best. More at: http://www.classbase.com/Countries/hungary/Grading-System

[2] First 4 semester took place in Hungary, but most of the course were in German. The 5. semester took place in Germany. After the 6. semester the program joins to the native, Hungarian program.

[3] Patrik J. Braun, Sreekrishna Pand, Robert S. Schmoll, Frank H.P. Fitzek, "On the Study and Deployment of Mobile Edge Cloud for Tactile Internet using a 5G Gaming application", in *14th IEEE Annual Consumer Communications & Networking Conference (CCNC)*, Las Vegas, U.S.A., Jan 2017.

[4] Sreekrishna Pand, Robert S. Schmoll, Patrik J. Braun, Frank H.P. Fitzek, "Demonstration of Mobile Edge Cloud for Tactile Internet using a 5G Gaming Application", in *14th IEEE Annual Consumer Communications & Networking Conference (CCNC)*, Las Vegas, U.S.A., Jan 2017.

[5] Patrik J. Braun, P. Ekler, Frank H.P. Fitzek, "Demonstration of a P2P assisted video streaming with WebRTC and Network Coding", in *14th IEEE Annual Consumer Communications & Networking Conference (CCNC)*, Las Vegas, U.S.A., Jan 2017.

[6] Patrik J. Braun, P. Ekler, Frank H.P. Fitzek, "Network coding enhanced browser based Peer-to-Peer streaming", in *2016 IEEE International Conference on Systems, Man, and Cybernetics*, Budapest, Hungary, Oct 2016.

[7] Patrik J. Braun, "Peer-to-peer streaming using Typescript and Network Coding", in *Proceedings of the Automation and Applied Computer Science Workshop 2016: AACS'16*, Budapest, Hungary, Jul 2016.

[8] Patrik J. Braun, M. Sipos, "Reducing linear dependencies in network coding assisted BitTorrent networks", in *Proceedings of the Automation and Applied Computer Science Workshop 2015: AACS'15*, Budapest, Hungary, Jul 2015.

[9] Patrik J. Braun, M. Sipos, P. Ekler, H. Charaf, "Increasing data distribution in BitTorrent networks by using network coding techniques", in *European Wireless 2015: 21th European Wireless Conference*, Budapest, Hungary, May 2015.

[10] Patrik J. Braun, P. Ekler, "Analysis of power usage on android platform", in *Proceedings of the Automation and Applied Computer Science Workshop 2014: AACS'14*, Budapest, Hungary, Jul 2014.

STUDENT CONFERENCES

[11] Patrik J. Braun, "Designing power usage optimization solutions on Android platform", in *XXXII. National Conference of Scientific Students' Associations*[3], Szeged, Hungary, Apr 2015.

[12] Patrik J. Braun, "Designing power usage optimization solutions on Android platform", in *Annual Conference of Scientific Students' Associations*[4] *at BME*, Budapest, Hungary, Oct 2013.

[13] Patrik J. Braun, "Framework for modeling the System of celled wireless networks", in *Annual Conference of Scientific Students' Associations*[4] *at BME*, Budapest, Hungary, Oct 2010.

OTHER CONFERENCES

[14] Patrik J. Braun, P. Ekler, "Improving QoS in web-based distributed streaming services with applied network coding", in *The 10th Jubilee Conference of PhD Students in Computer Science*, Szeged, Hungary, Jun 2016.

AWARDS & SCHOLARSHIPS		
▪ Demonstration award Runner-Up		Jan 2017
• For: demonstrating a P2P Assisted Video Streraming with WebRTC and Network Coding		
▪ Excellent talk at CSCS Conference, Szeged, Hungary		Jun 2016
• For: presenting the paper: Improving QoS in web-based distributed streaming services with applied network coding		
▪ Fellowship granted by the Republic		Sep 2014 – Jan 2015
• For: the scientific work between Jun 2013 – Jun 2014, high GPA (over 4.0 / 5.0) and project work at the department		
▪ Faculty scholarship		Sep 2014 – Jan 2015
• For: the scientific work between Feb 2014 – Jun 2014 (TDK'13 and AACS'14 publication), high GPA (over 4.0 / 5.0) and project work at the department		
▪ First prize at the Conference of Scientific Students' Associations[4] 2013		Oct 2013
▪ The German Academic Exchange Service (DAAD) scholarship		Oct 2011 – Feb 2012
• For: participating the German dual degree program, GPA over 3.5 / 5.0		
▪ Faculty scholarship		Feb 2011 – Jun 2012
• For: the scientific work between Sep 2010 – Jan 2011 (TDK'10), high GPA (over 4.0 / 5.0) and project work at the department, teaching Basics of Programming (C and C++) laboratory		

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[3]Also known as OTDK
[4]Also known as TDK

	▪ Fellowship granted by the Republic	Sep 2011 – Jun 2012

- For: the scientific work between Jun 2010 – Jun 2011 (TDK'10), high GPA (over 4.0 / 5.0), project work at the department and teaching Basics of Programming (C and C++) laboratory

▪ Special prize at the Conference of Scientific Students' Associations[4] 2010	Oct 2010

LECTURING

Mobile Software System Development, BME

▪ Mobile Software System Laboratory	Feb 2017 – May 2017

- Presented technologies: Android, Swagger, Travis CI, SugarORM, Just in Mind
- Responsibilities: teaching a four group of 20 students, four times 180 mins per week

Business Intelligence laboratory, BME

▪ Data visualization laboratory	Feb 2017 – May 2017
▪ Data visualization laboratory	Feb 2016 – May 2016

- Presented technologies: Angular, Firebase, IntelliJ Idea
- Responsibilities: teaching a group of 25 students, two times 90 mins per semester and grading tests

▪ NoSQL laboratory	Feb 2016 – May 2016

- Presented technologies: JavaFX, Redis
- Responsibilities: teaching a group of 25 students, four times 90 mins per semester and grading tests

Mobile- and Web-based Software, BME

▪ Mobile- and Web-based Software in English	Oct 2016 – Jan 2017

- Responsibilities: teaching a group of 4 students in english, 90 mins per week and grading tests and homework

Android-based Software Development, BME

▪ Android-based Software Development laboratory	Feb 2016 – May 2016
▪ Android-based Software Development laboratory	Oct 2015 – Dec 2015

- Responsibilities: teaching a group of 25 students, 90 mins per week and grading tests and homework

Informatics 2, BME

▪ Informatics 2 laboratory	Feb 2015 – May 2015

- Responsibilities: teaching two groups of 25 students, 45 mins per week and grading tests and homework

Basics of Programming I. – II. (C and C+++) , BME

▪ Basics of Programming II. (C++) laboratory	Feb 2015 – May 2015

- Responsibilities: teaching a group of 25 students, 90 mins per week and grading tests and homework

▪ Basics of Programming II. (C++) laboratory in German	Mar 2012 – May 2012
▪ Basics of Programming II. (C++) laboratory in German	Feb 2011 – May 2011

- Course is part of the German dual degree program, course language: German.
- Responsibilities: teaching a group of 20 students, 90 mins per week and grading tests and homework

▪ Basics of Programming I. (C) laboratory in German	Sep 2010 – Dec 2010

- Course is part of the German dual degree program, course language: German.
- Responsibilities: teaching a group of 20 students, 90 mins per week and grading tests and homework

Supervising Students, BME

- B.Sc Student theses   Oct 2016 – Jan 2017
  - Thesis: User interface design of a workout application in Android environment
  - Thesis: Design and development of the backend features of a workout application in Android environment
  - Thesis: Designing and implementing a client application for the Unified Social System
  - Thesis: PHP based REST API design

- Software Architectures semester projects   Oct 2016 – Jan 2017
  - Supervising 6 groups of students (Each group had two members) for a semester project of the course.

- Project Laboratories, M.Sc and B.Sc   Feb 2016 – May 2016
  - Topic: Development of online dormitory administration system
  - Topic: Raspberry Pi assisted cloud storage
  - Topic: Developing a Hungarian diacritic restoration app for Android

- B.Sc Student thesis   Oct 2015 – Jan 2016
  - Thesis: Raspberry Pi assisted cloud storage

- Software Architectures semester projects   Oct 2015 – Jan 2016
  - Supervising 6 groups of students (Each group had two members) for a semester project of the course.

- Project Laboratory, M.Sc   Feb 2015 – May 2015
  - Topic: Game development for mobile platforms using Unity3D

OTHER WORK EXPERIENCE

BME-AutSoft Kft., Budapest, Hungary

- Project Manager   Feb 2017 – Present
  - Technical consultant and manager on project connected to Network Coding, Edge Cloud and 5G

- Software Engineer   Apr 2016 – Present
  - Participating in smaller projects. Used languages: JavaScript, Java

- Software Engineer   Mar 2015 – May 2015
  - Developing the Android application of Alpha online.
  - Working with a team of 3 people
  - Available at Google Play: Alfa Online

- Software Engineer   Jan 2014 – Oct 2014
  - Developing an Android application for language courses. A student (for small devices) and teacher (for tablet devices) version of the application were also developed.
  - Customer: TIT
  - Working with a team of 4 people, but I was the only Android developer on the project
  - Available at Google Play: E-course teacher, E-tutor

Gravity Rock Solid Recommendation, Budapest, Hungary

- Junior Software Engineer   Jul 2013 – Sep 2013
  - Frontend development: developing an online reporting system, based on Piwik
  - Working with a team of 2 people

- Junior Software Engineer   Aug 2012 – Sep 2012
  - Taking part in a a Silverlight program development for IBC.
  - Working with a team of 3 people

- Junior Software Engineer   Aug 2011 – Sep 2011
  - Taking part in a Silverlight demo application development for IBC.
  - Self written line of code: 4 500
  - Working with a team of 3 people
  - Also developing smaller tools in Java and in GWT.

Budapest University of Technology and Economics, Budapest, Hungary

- Student Software developer   Aug 2011 – Dec 2012
  - Project: Developing a website(for uploading and automatically correcting C/C++ homework) in Java/GWT.

- Project work   Jun 2010 – Jan 2011
  - Project work at the Department of Broadband Infocommunications and Electromagnetic Theory Topic: Developing a framework for modeling the System of celled wireless networks

Richard Fritz Kft, Aszód, Hungary

- System administrator assistant   Jun 2007 – Jul 2007

- System administrator assistant   Jun 2006 – Jul 2006
  - Responsibilities: Windows and printers installing, user support

Other Projects

- Developing an online Calendar and Photobook editing and ordering website   Jan 2014 – Present
  - Responsibilities: Backend development, Architectural design and contacting with the costumer
  - Working with a team of 2 people
  - Self written line of code: 18 200
  - Used techonlogies: PHP, JavaScript, Typescript, jQuery, MySQL, iMagick
  - Available at: http://www.fotokonyvexpressz.hu/

LANGUAGES

- Hungarian: Native language.
- English: Fluent (speaking, reading, writing), Certificate: C1[5].
- German: Intermediate (speaking, reading, writing), Certificate: B1[5].
- Spanish: Beginner/hobby (speaking, reading, writing), Certificate: -.

SKILLS

Typescript, CSS, PHP, HTML5, jQuery, WebRTC Java, Android Kodo, LaTeX, Git, UML, Linux, Network Coding, SQL C, C++, C#

[CV written on 2018-01-09]

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[5]Common European Framework of Reference for Languages: http://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr