

ABBAS JAVADTALAB

abbasj@encs.concordia.ca, javadtalab@gmail.com
+1 514-623-5680

Concordia University

Assistant Professor

Montreal, QC

08/2017 – Present

École de technologie supérieure (ÉTS)

Postdoctoral Fellow

Montreal, QC

08/2015 – 07/2017

University of Ottawa

Research Assistant

Ottawa, ON

9/2009 – 04/2015

EDUCATION & TRAINING

École de technologie supérieure (ÉTS)

Montreal, QC

08/2015 – 07/2017

Postdoctoral Fellow (Research title:

1. *Transcoder-aided region of interest streaming over heterogeneous networks for 360-degree video on demand. (2017)*
2. *Transcoder-aided multipoint real-time video conferencing over heterogeneous networks. (2016)*

University of Ottawa, Ottawa, ON, CANADA

Ottawa, CANADA

2009-2014

Ph.D. in Electrical and Computer Engineering

Cumulative GPA: 4/4

Dissertation: An end-to-end solution for high-definition video conferencing over best effort networks

Professional Engineers of Ontario (P.Eng.) and EIT holder

In-Process

Sharif University of Technology

Tehran, IRAN

MSc in Computer Engineering

2002-2005

Cumulative GPA: 17.98/20

Core course areas: multimedia communications, computer networks, signal processing, computer architecture, fault-tolerant system.

Dissertation: Proxy Caching for Video on Demand Over the Internet

Azad University of Arak

Arak, IRAN

B.Sc. in Computer Engineering: Major in Computer hardware

1997-2002

Dissertation: Research and Analysis on Arithmetic and Logic Operator in High Speed Mode (Current Mode)

KEY ACHIEVEMENTS

- Published a paper from a course that I thought "**Lessons Learned from an Introductory Java Course for Non-Technical Students**", in The world Congress in Computer Science Computer Engineering and Applied Computing (WORLD COMP'14), Las Vegas, USA, 2014.

- **Short-listed** on Natural sciences and Engineering Research council of Canada (**NSERC-PDF 2017**).
- **Awarded** Mitacs postdoctoral fellowship, August 2016.
- **Awarded** Mitacs postdoctoral fellowship, August 2015.
- **Cisco project grant** " Error-Resilient Scalable Adaptive Live Video Streaming over Best Effort Networks", 2014.
- **Research collaborations** with some research centers: Istanbul Sehir University(Turkey), Ottawa University and ETS and by April (McGill).
- Second place, IBM Extreme Blue Case Study Competition, Ottawa Region, January 2010.
- Among the top 2 percent of all MSc students all MSc in computer system architecture major and Among the top 5 percent of all MSc students of the MSc computer engineering department of Sharif University of Technology, 2004.
- Earned the 1st and 2nd top marks in 6 of 8 graduate courses.
- Ranked the 10 percent of top student at Natural science in the high school period.
- Ranked 60th among more than 10,000 graduate applicants in the Iranian Nationwide Graduate University Entrance Exams (Arshad Konkoor), 2002.

PATENTS

1. Abbas Javadtalab and Shervin Shirmohammadi, "Dynamic Rate Control Algorithm for High Definition Video Conferencing" U.S. Patent Pending 15265-000018/US. 2012.
2. Aziz Khanchi, Mahdi Semsarzadeh, Abbas Javadtalab, Shervin Shirmohammadi, "Network Congestion Prediction" US Patent Pending 61/639,531, 2012.

TEACHING EXPERIENCE

- | | |
|--|---|
| <p>Part-time Prof
<i>University of Ottawa</i></p> | <p>Ottawa, ON
Fall 2013</p> |
| <ul style="list-style-type: none"> • CSI1390 (Introduction to Computing): Computing and computers; Problem solving and algorithm development; Introduction to programming; Use of application, communication, and database software | |
| <p>Lecturer
<i>University of Ottawa</i></p> | <p>Ottawa, ON
Fall 2014</p> |
| <ul style="list-style-type: none"> • ELG4913 (Electrical Engineering Design Project: Part II) • GNG 1106A: Fundamentals of Engineering Computation | |
| <p>Lecturer
<i>University of Ottawa</i></p> | <p>Ottawa, ON
Winter 2014</p> |
| <ul style="list-style-type: none"> • ELG4912 (Electrical Engineering Design Project: Part I) • ELG4913 (Electrical Engineering Design Project: Part II) | |
| <p>Lecturer
<i>University of Ottawa</i></p> | <p>Ottawa, ON
Fall 2011</p> |
| <ul style="list-style-type: none"> • (ELG 5100) Software Engineering Project Management-Graduate course | |
| <p>Instructor
<i>University of Qom</i></p> | <p>Qom, IRAN
Fall 2007-Summer 2009</p> |
| <ul style="list-style-type: none"> • Computer System Architecture: Fall 2007, spring 2008, fall 2008, spring 2009 • Logical Circuit Design Principle: Fall 2007, fall 2008 • Logical circuit design lab: Fall 2007, spring 2008, and fall 2008 | |

- **Multimedia Systems: Winter 2009**

Teacher Assistant
University of Ottawa

Ottawa, ON
Fall 2010-2014

- **ELG4912 (Electrical Engineering Design Project: Part I): Fall/Winter 2010, 2013**
- **ELG4913 (Electrical Engineering Design Project: Part II): Fall/Winter 2010, 2013, and Fall 2014**
- **CEG4912 (Computer Engineering Design Project: Part I): Fall/Winter 2011**
- **CEG4913 (Computer Engineering Design Project: Part II): Fall/Winter 2011**
- **Digital Systems (ITI1100): Winter 2012**

RESEARCH INTERESTS

- **Multimedia Communication**
- **360 Video streaming**
- **Virtual and augmented reality**
- **Video gaming**
- **Video Conferencing and Video On Demand**
- **Congestion Control/ Prediction**
- **Rate Control/Adaptation**
- **Multi-view/3D Video Communication**
- **Proxy Caching**
- **Video Transcoder**

WORK / RESEARCH EXPERIENCE

Vantrix, Montreal, QC
(R&D Member, Industrial Postdoc)

Montreal, QC
9/2015 – Present

- Designed and developed End-to-End WebRTC based video conferencing solution using OpenWebRTC called OpenTranscoder.
- Integrated OpenTranscoder with Vatrix transcoder solution.
- Developed some filters for Gstreamer in video processing categories.
- Upgraded and ported the Vantrix solution from Gstreamer 0.10 to Gstreamer 1.7.X version.
- Designed a video proxy based on the Vantrix transcoder solution.
- Write Test Suite using Google Junit and JS Test Case to perform FT test of implemented component
- Integrated AppRTC, StunServer, TurnServer solution and Google App Engine SDK in Vantrix system.

Ericsson, Montreal, QC
(R&D Member)

Montreal, QC
12/2014 – 4/2015

- Designed and developed JSON Parser and integrate with Universal Cache (UC) Solution (OO C++).
- Designed and Prototype and test a sketch design to integrate of the UC and FABRIX (OO C++).
- Write Test Suite using Google Junit Test Case to perform FT test of implemented component.
- Improved SNMP v2 Agent to send some statistical information to the log server (In python).
- Improved UC loader to check if all configuration files are correct (In Bash Scripting Language).
- Submitted a patent in Proxy Caching: Abbas Javadtalab, "Proxy Caching for Video on Demand over the Internet", Ericsson, 2015.

MAGOR Corp
R&D Collaboration

Ottawa, ON
1/2010 - 05/2014

- Designed a new Rate controller specifically for High Definition Video Conferencing (HDVC) .
- Developed and Integrated Dynamic Rate Controller for Magor Telepresence Solution.
- Filed a patent in rate controller: Abbas Javadtalab and Shervin Shirmohammadi, "Dynamic Rate Control Algorithm for High Definition Video Conferencing" U.S. Patent Pending 15265-000018/US. 2012.
- Designed and developed a congestion prediction method to predict congestion on the network
- Filed a Patent on Congestion prediction system: Aziz Khanchi, Mehdi Semsarzadeh, Abbas Javadtalab, Shervin Shirmohammadi, "Network Congestion Prediction" US Patent Pending 61/639,531, 2012.
- Published some papers and a Demo in Academic Workshops, conferences, Journals.

University of Ottawa
Research Assistant

Ottawa, ON
9/2009 - 2015

- Created video rate controller for high-definition video conferencing (HDVC) (resulted in a demo and journal papers).
- Designed Congestion prediction method for video conferencing over Internet.
- Implemented Network bandwidth calculation method for UDP-Based for live video communication.
- Designing and developing rate controller for multi-view video coded (HEVC).
- Designing and developing congestion monitoring system for WEB-RTC systems.

Moudj Khavar Corp

Tehran, Iran

Participated in different Projects:

2004 -2009

15 GHZ Point to point radio link

2007 -2009

R&D Senior member: System Analyzer, Designer and Developer.

-
- Developed a customized embedded device with ARM based CPU and some related hardware interfaces to communicate with FPGA and other communication modules.
 - Implemented Linux Driver for embedded board modules and FPGA Interface as NIC.
 - Tested and Debugged the whole system.
 - Developed SNMP MIB and Network Administration system.

Digital Portable Microwave Link (Computer Section)

2006 -2008

R&D member: System Analyzer, Designer and Developer.

-
- Developed a user interfaces to communicate with NEL IC (MPEG-2 HDTV Single-Chip Encoder LSI).
 - Implemented a driver for some audio IC's based on ITU-R BT.1305-1.
 - Tested and Debugged the whole system.
 - Designed PCB.

Mobile Broadcasting Television based on DVB-H standard

2005 -2006

R&D member: System Analyzer, Developer.

-
- Implemented IP Encapsulator (IPE) based on DVB-H standard
 - Generated required tables such is INT, NIT, PMT, PAT, etc.
 - Tested and Debugged the whole system.

Local Multipoint Distribution System (LMDS) Based on IEEE802.16 Standard

2004 -2006

R&D member: System Analyzer, Developer.

-
- Developed a board and Integrate Motorola Communication Processor (MPC8280) in the system.
 - Developed a driver in Linux to activate and communicate with MCC, T1, CEPT, T1/E1, T3/E3 in MPC8280 with other modules.
 - Developed a customized embedded board based on MPC8280.
 - Designed PCB.
 - Tested and Debugged the whole system.

Robotic Group (University of Qom)

2008 -2009

Group Leader: System Analyzer, Developer.

-
- Founded and Managed undergraduate Robotic team to develop line follower and robotic soccer
 - Participated in Inter-University Robcup (Line follower section)

LANGUAGE

-
- **Fluent in English, Turkish and Persian**

SUMMARY OF TECHNICAL SKILLS

-
- **Programming and Scripting Languages:** C/C++, C#, Java, Python, Bash, Go, Perl, Matlab, Shell Programming, and Kernel Programming.
 - **Platforms:** Linux/Unix, Windows, DOS, RTAI, Embedded Linux, and Mac OS X.
 - **CPU Platforms:** X86, MOTOROLA, and ARM.
 - **Software Design:** UML, SDL, behavioral modeling, structural modeling, design patterns, Object Oriented principles and SOA design principles.
 - **Distributed Programming:** Client-Server/Socket programming
 - **Web Development and E-Commerce:** HTML, CSS, XML/XML Schema, Java Script, AJAX, JSON, and Apache Httpd, and WebSocket.
 - **Software Project Management:** project planning, Agile processes, cost estimation and scheduling.
 - **Software testing:** test planning, testing, verification, validation techniques (white-box, black-box, state-based, and system testing techniques), JUnits, PyUnits, Google App Engine SDK, Google Test Case Generator to perform unit tests and FT suite.
 - **Databases:** DB2, MySQL, MS SQL Server 2000/5 and Microsoft Access
 - **3D Programming:** C/C++ OpenGL and Java OpenGL (JOGL, LWJGL), NVidia CUDA and OpenCV.
 - **IDEs:** Eclipse, Netbeans, JBuilder, Microsoft Visual studio 2003/5, IBM Rational Rose Real Time, Xcode, and Quartus.
 - **Networking:** Ethernet, IP, IPv6, TCP, UDP, SNMP, HTTP, FTP, SSH, DNS, DHCP, XMPP, RTP, SIP among others.
 - **Standards:** RTP,RTSP,RTCP, ISDN, ATM, TCP/IP,IEEE 802.11b, IEEE 802.16, DVB-H, ITU-T, BT.656, ITU-T Bt.601, ITU-T BT.1305, SMPTE 259M.
 - **Hardware Design Languages:** VHDL and Verilog.
 - **Network tools:** Ether Scan Analyzer , Packet Analyzer, DVBSAM Analyzer and Wireshark.
 - **Hardware Design:** CAD with VHDL, CAD with Verilog, VLSI, Advanced VLSI, Advanced Computer Architecture, Interfacing Systems , Advanced Fault Tolerant Systems, Board design.
 - **CAD Tools & Utils:** ModelSim, Leonardo Spectrum, PSpice, MATLAB, ORCAD,PROTELL, Electronic work bench.

PUBLICATIONS

Journals and Magazines

1. T. Su, A. Sobhani, A. Yassine, S. Shirmohammadi, and **A. Javadtalab**, "A DASH-based HEVC multi-view video streaming system," *Journal of Real-Time Image Process.*, vol. 12, no. 2, pp. 329-342, 2016.
2. **A. Javadtalab**, M. Semsarzadeh, A. Khanchi, S. Shirmohammadi, A. Yassine, "Continuous One-Way Detection of Available Bandwidth Changes for Video Streaming Over Best-Effort Networks," *IEEE Transactions on Instrumentation and Measurement*, vol. 64, no. 1, pp. 190-203, Jan. 2015.
3. **A. Javadtalab**, S. Shirmohammadi, M. Omidyeganeh, A. Yassine, M. Hosseini, "A Dynamic Rate control Algorithm for H.264 High Definition Video Conferencing," (Revision in review)

Demo Papers

1. **A. Javadtalab**, X. Zhu, and S. Shirmohammadi, "A Fast-Adjusting Rate Control Algorithm Using Network-Assisted Scheme for HD Video Streaming," *Proc. IEEE International Symposium on Multimedia*, Taichung, Taiwan, December 10-12, 2014.
2. **A. Javadtalab**, S. Shirmohammadi, M. Hosseini, "DEMO PAPER: A fast-adjusting high-quality rate control algorithm for HD video streaming" In *Proc. IEEE International Conference on Multimedia & Expo (ICME2014)*, San Jose, USA, July 15-19, 2013.

Conferences

1. **A. Javadtalab**, S. Shirmohammadi, M. Omidyeganeh, and M. Hosseini, "A Bitrate-Conservative Fast-Adjusting Rate Controller for Video Conferencing," *The ACM Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV2017)*, Taipei, Taiwan, June 20-23, 2017 (Submitted)
2. R. Atwah, Razib Iqbal, S. Shirmohammadi, and **A. Javadtalab**, "A Dynamic Alpha Congestion Controller for WebRTC", in *Proceedings of IEEE International Symposium on Multimedia (ISM)*, Miami, USA, Dec. 14-16, 2015.
3. T. Su, **A. Javadtalab**, A. Yassine, and S. Shirmohammadi, "A DASH-Based 3D Multi-view Video Rate Control System", *International Conference on Signal Processing and Communication Systems*, Australia, 2014.
4. M. Scaiano, **A. Javadtalab**, L. Peyton, "Lessons Learned from an Introductory Java Course for Non-Technical Students", in *The world Congress in Computer Science Computer Engineering and Applied Computing (WORLD COMP'14)*, Las Vegas, USA, 2014.
5. M. Semsarzadeh, M. Hemmati, **A. Javadtalab**, A. Yassine, and S. Shirmohammadi, "A video encoding speed-up architecture for cloud gaming," in *IEEE International Conference on Multimedia and Expo Workshops (ICMEW)*, Chengdu, China, 2014, pp. 1-6.
6. M. Omidyeganeh, S. Shirmohammadi, R. Laganieri, R. Youmaran, and **A. Javadtalab**, "Face identification using wavelet transform of sift features," in *IEEE International Conference on Multimedia and Expo Workshops (ICMEW)*, San Jose, USA, 2013, pp. 1-6.
7. M. Hemmati, **A. Javadtalab**, A. A. N. Shirehjini, S. Shirmohammadi, T. Arici, "Game as Video: Bit Rate Reduction through Adaptive Object Encoding", *The 23rd ACM Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, Oslo, Norway, February 27, 2013
8. Khanchi, M. Semsarzadeh, **A. Javadtalab**, S. Shirmohammadi, "Continuous One-Way Available Bandwidth Change Detection in High Definition Video Conferencing," *ACM Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, Oslo, Norway, February 27, 2013
9. M. Omidyeganeh, **A. Javadtalab**, S. Ghaemmaghami, and S. Shirmohammadi, "A Robust Wavelet based Approach to Fingerprint Identification," *The 2nd IEEE International Workshop on Advances in Automated Multimedia Surveillance for Public Safety*, *Proc. IEEE International Conference on Multimedia and Expo (ICME)*, Melbourne, Australia, July 9-13, 2012.
10. M. Omidyeganeh, **A. Javadtalab**, S. Ghaemmaghami, S. Shirmohammadi, "Contourlet Based Generalized Gaussian Modeling for Intelligent Fingerprint Identification," *Proc. IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*, Graz, Austria, May 13-16, 2012.

11. M. Omidyeganeh, **A. Javadtalab**, S. Ghaemmaghani, S. Shirmohammadi, F. Zargari, "Statistical Modeling of Error Resilient JPEG2000 Decoding", Proc. IEEE Region 10 Annual Conference (TENCON), Bali, Indonesia, November 21-24, 2011
12. M. Omidyeganeh, **A. Javadtalab**, S. Shirmohammadi, "Intelligent Driver Drowsiness Detection through Fusion of Yawning and Eye Closure", Proc. IEEE Conference on Virtual Environments, Human-Computer Interfaces, and Measurement Systems, Ottawa, ON, Canada, September 19-21, 2011
13. **A. Javadtalab**, M. Omidyeganeh, S. Shirmohammadi, M. Hosseini, "A Rate Control Algorithm for X264 High Definition Video Conferencing", Proc. Workshop on Acoustics and Video Coding and Communication, in Proc. IEEE International Conference on Multimedia & Expo, Barcelona, Spain, July 11-15, 2011
14. **A. Javadtalab**, L. Abbadi, M. Omidyeganeh, C. Adams, S. Shirmohammadi, A. El Saddik, "Transparent Non-Intrusive Multimodal Biometric System For Video Conference Using The Fusion of Face and Ear Recognition", Proc. Annual Conference on Privacy, Security and Trust, Montreal, QC, Canada, July 19-21, 2011
15. **A. Javadtalab**, M. Omidyeganeh, S. Shirmohammadi, M. Hosseini, "On the Suitability of Current x264 Rate Controller Algorithms for High Definition Video Conferencing", Proc. International Symposium on Artificial Intelligence and Signal Processing, Tehran, Iran, June 15-16, 2011
16. **A. Javadtalab**, H. R. Rabiee, M. Omidyeganeh, M. Ghanbari, "A New Technique to Increase the Proxy Caching Performance in VoD Systems," in proceedings of the IEEE International Symposium on Broadband Multimedia Systems and Broadcasting 2007 (IEEE Broadband Multimedia 2007), Orlando, Florida, USA, March 2007.
17. Omidyeganeh, R. Azmi, K. Nayebi, **A. Javadtalab**, "A New Method to Improve Multi Font Farsi/Arabic Character Segmentation Results: Using Extra Classes of Some Character Combinations", , Multimedia Modeling Conference, Nanyang Technological University, Singapore MMM2007.(paper ID=197).
18. A. Patooghy, S. Gh. Miremadi, **A. Javadtalab**, M. Fazeli, N. Farazmand, "A solution to Single Point of Failure Using Distributed Voting", The 2nd IEEE International Symposium on Dependable, Autonomic and Secure Computing (DASC'06), Indiana University, Purdue University, Indianapolis, USA September 29-October 1, 2006.
19. M. Omidyeganeh, K. Nayebi, R. Azmi, **A. Javadtalab**, "A New Segmentation Technique for Multi Font Farsi/Arabic Texts", Acoustics, Speech, and Signal Processing, 2005. Proceedings. (ICASSP2005). IEEE International Conference , Volume 2, (2005), pp.757 – 760.
20. **A. Javadtalab**, A. Patooghy, S. Miremadi, M. Omidyeganeh, "Distributed Voting for Tolerating Errors in TMR" (In Persian) in CSRCC 2005.

INVITED TALKS

1. "Dynamic Rate Controller for High Definition Video Conference in x264"
 - IBM COSCON conference, Toronto, Canada, 2012
 - Magor Corp, Ottawa, Canada, 2012
2. "The Modified rate controller for High Definition video conference in x264 codec", Magor Corp, Ottawa, 2011.
3. "The overview of current rate distortion algorithms in x264 codec", Magor Corp, Ottawa, Canada, 2010.
4. "Overview of the H. 264/AVC video coding standard with respect to DVB-H technology", Fanamoj Corp, 2007.
5. "Video on Demand Usage in Accounting and eGovernment", Computer workshop on Islamic Azad university of Hamadan, 2005.
6. "Overview of Matlab and its usage in analyzing in Signal and system application " Matlab workshop Sharif University of Technology, 2004.
7. 'IEEE 802.11b High Rate Wireless Local Area Networks', Advanced network presentation, Sharif University of Technology, 2004.

PROFESSIONAL SERVICE

- TCP member

- IEEE CloudCom workshop on Delay-Sensitive Video Computing in the Cloud (DSVCC), - Dec 3, 2015. <http://mmnet.iis.sinica.edu.tw/dsvcc15/index.html>
 - The IEEE International Symposium on Multimedia (ISM), Dec 11 2016 http://ism.eecs.uci.edu/ISM2016/committee_program.html
- **Conference volunteer :**
 - The International Conference on Image Processing (ICIP), 2015
- **Reviewer for:**
 - IEEE Transactions on Instrumentation and Measurement (TIM), 2009-Present
 - IEEE Transactions on Multimedia, 2012-2013
 - ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMCCAP), 2009-present
 - Springer: Multimedia Tools and Applications, 2009-present
- **Students Co-Supervising, Mentoring**
 - Mentoring
 - Mohammed Mohamed MSc Student at Istanbul Şehir University (2017).
 - Mohamed Elsharnouby MSc Student at Istanbul Şehir University (2017).
 - Ashkan Sobhani, Ph.D Student, University of Ottawa (2013-2014).
 - Rasha Atwah, MSc student, University of Ottawa (2014).
 - Tianyu Su, MSc Student, University of Ottawa (2014).
 - Sylla Aboubakar, MSc Student – École de technologie supérieure (2016).
 - Supervisor:
 - University of Qom, 2009 - Hamideh Ganji, Undergraduate.
 - Co-Supervisor:
 - Mohammad Khaki, MSc Student -University of Ottawa (2016-2017).

REFERENCES

Will be provided upon request.