May 2013

CURRICULUM VITAE

AHMAD ASHOORI

Born: September, 1984

EDUCATION:

Sept. 2008 – Dec. 2013 (Expected) University of British Columbia, Vancouver, Canada.
PhD, Control, Electrical Engineering
Supervisor: Dr. M. Oishi
Thesis: *Modeling and Control of Parkinson's Disease.*

Sept. 2006 - July 2008 University of Tehran, Tehran, Iran.
MSc., Control, Electrical Engineering
Supervisors: Prof. B. Moshiri and Dr. M. R. Bakhtiari
Advisor: Prof. A. Khaki Sedigh
Thesis: *Predictive Control of Penicillin Production Bioprocess.* (18.84/20)
GPA: 18.53/20

Sept. 2002 - Aug. 2006 University of Tehran, Tehran, Iran.
BSc., Control, Electrical Engineering
Supervisor: Dr. S. K. Setarehdan
Thesis: *Detecting Coronary Layers in Intravascular Ultrasound (IVUS) pictures.* (19/20)
GPA: 16.54/20

Note: University of Tehran is the oldest, largest, and highly prestigious university of Iran.

RESEARCH INTERESTS:

Adaptive Control (of bioprocesses)
Predictive Control (of bioprocesses)
Fuzzy Control
Automation & Instrumentation
Sensor/Data Fusion
Machine Vision & Robotics
Biomedical Image Processing
Assess motor performance in Parkinson's Disease

BOOKS AND BOOK CHAPTERS:

1. A. Ashoori, B. Moshiri, S. K. Setarehdan, "Detecting Coronary Layers in IVUS Pictures using Image Fusion Approach," in the *Book Chapter on Image Fusion, InTech Publishers*, ISBN 978-953-307-182-4, Rijeka, Croatia, pages 111-126, June 2011.

JOURNAL PUBLICATIONS:

5. N. Baradaran, S. N. Tan, A. Liu, **A. Ashoori**, S. J. Palmer, Z. J. Wang, M. M. K. Oishi, M. J. McKeown, "Parkinson's disease rigidity: relation to brain connectivity and motor performance," accepted in *Frontiers in Movement Disorders*, May 2013.

4. M. M. K. Oishi, N. Matni, **A. Ashoori**, M. J. McKeown, , "Switching Restrictions for Stability Despite Switching Delay: Application to Switched Tracking Tasks in Parkinson's Disease," *Journal of Nonlinear Systems and Applications*, special issue on hybrid systems, pages 16-25, Feb. 2011.

3. A. Ashoori, M. J. McKeown, M. M. K. Oishi, "Switched Manual Pursuit Tracking Tasks to Measure Motor Performance in Parkinson's Disease, " *IET Journal on Control Theory & Applications*, 5(17), pages 1970-1977, April 2011.

2. A. Ashoori, B. Moshiri, A. Ramezani, M. R. Bakhtiari, and A. Khaki-Sedigh, "PH Control of Penicillin Fermentation Process Using Predictive Approach," *Systems-Science Journal*, 35(1), pages 65-74, 2009.

1. A. Ashoori, B. Moshiri, A. Khaki-Sedigh, and M. R. Bakhtiari, "Optimal Control of a Nonlinear Fed-batch Fermentation Process using Model Predictive Approach," *Journal of Process Control*, 19(7), pages 1162-1173, July 2009.

CONFERENCE PUBLICATIONS:

9. M. M. K. Oishi, **A. Ashoori**, and M. J. McKeown, "Mode Detection in Switched Pursuit Tracking Tasks: Hybrid Estimation to Measure Performance in Parkinson's Disease," accepted in *the 49th IEEE Conference on Decision, and Control (CDC 2010)*, Dec. 15-17, 2010, Atlanta, GA, US. (available via *IEEEXplore*)

8. N. Golpayegani, and **A. Ashoori**, "A novel algorithm for edge enhancement based on Hilbert Matrix," presented at *the 2nd International Conference on Computer Engineering and Technology (ICCET 2010)*, Apr. 16-18, 2010, Chengdu, Sichuan, China. (available via *IEEEXplore*)

7. A. Ashoori, A. H. Ghods, M. R. Bakhtiari, and A. Khaki-Sedigh, "Model Predictive Control of a Nonlinear Fed-batch Fermentation Process," presented at *the 10th International Conference on Automation, Robotics, Control, and Vision (ICARCV 2008)*, Dec. 17-20, 2008, Hanoi, Vietnam. (available via *IEEEXplore*)

6. A. Ashoori, B. Moshiri, A. Ramezani, M. R. Bakhtiari, and A. Khaki-Sedigh, "pH Control of a Fed-batch Fermentation Process using Model Predictive Control," presented at *the 14th International Congress of cybernetics and systems of WOSC (ICCS 2008)*, Sept. 9-12, 2008, Wroclaw, Poland.

5. A. Ashoori, B. Moshiri, and S. K. Setarehdan, "Fuzzy Image Fusion Application in Detecting Coronary Layers in IVUS Pictures," presented at *the 3rd International Symposium on Communication, Control and Signal Processing (ISCCSP 2008)*, March 12-14, 2008, Malta. (available via *IEEEXplore*)

4. M. Javan-Roshtkhari, **A. Ashoori**, and S. Javan-Roshtkhari, "Control Relevant Identification for Controlling a Continuous-Stream Bioreactor with Unknown Dynamics," presented at *the 3rd International Symposium on Communication, Control and Signal Processing (ISCCSP 2008)*, March 12-14, 2008, Malta. (available via *IEEEXplore*)

3. A. Khadem, S. K. Setarehdan, and **A. Ashoori**, "Bivariate Cubic Smoothing Spline for Denoising the Displacement Estimates in Ultrasound Elastography," presented in *the International Workshop on Signal Processing and its Applications (WOSPA 2008)*, March 18-20, 2008, Sharjah, UAE.

2. A. Ashoori, and B. Moshiri, "Application of Information Fusion in Intelligent Detecting of Coronary Layers in IVUS Pictures," presented at *the 1st Joint Conference on Intelligent Systems and Fuzzy Systems (Isfs 2007)*, Aug. 29-31, 2007, Mashhad, Iran.

1. A. Ashoori, and S. K. Setarehdan, "Detecting Coronary Layers in IVUS Pictures," presented at *the 4th Conference on Machine Vision and Image Processing (Mvip 2007)*, Feb. 14-15, 2007, Mashhad, Iran. .

POSTER AND ABSTRACT PUBLICATIONS:

8. N. Niksirat, **A. Ashoori**, N. Baradaran, M. M. K. Oishi, M. J. McKeown, "The Updated Wartenberg Pendulum Test as an Objective Quantitative Measure of Rigidity in Parkinson's disease," poster presented at *Canadian Physiotherapy Association's Congress and the Orthopaedic Division's Symposium*, May 23-26, 2013, Montreal, Canada.

7. D. J. Kim, **A. Ashoori**, E. Ty, M. M. K. Oishi, M. J. McKeown, "Augmented set-shifting in Parkinson's disease with noisy Galvanic Vestibular Stimulation," poster presented at the *5th International Conference on Non-invasive Brain Stimulation*, 19-21 March, 2013, Leipzig, Germany.

6. D. J. Kim, **A. Ashoori**, E. Ty, M. M. K. Oishi, M. J. McKeown, "Subthreshold noisy galvanic vestibular stimulation normalizes motor responsiveness to visual error feedback in Parkinson's disease," poster presented at *The Movement Disorder Society's 16th International Congress of Parkinson's Disease and Movement Disorders*, June 17-21, 2012, Dublin, Ireland.

5. D. J. Kim, **A. Ashoori**, E. Ty, M. M. K. Oishi, M. J. McKeown, "Effects of noisy galvanic vestibular stimulation on motor tracking in Parkinson's disease on and off medication," poster presented at the *Annual World Congress of Society for Brain Mapping and Therapeutics (SBMT 2012)*, June 2-4, 2012, Toronto, ON, Canada.

4. D. J. Kim, **A. Ashoori**, E. Ty, M. J. McKeown, "Noninvasive stimulation for Parkinsonian's disease: Noisy vestibular input improves motor performance," *Annual Neurology Resident Research Day*, June 13, 2012, UBC, Vancouver, BC, Canada.

3. N. Baradaran, **A. Ashoori**, M. M. K. Oishi, M. J. McKeown, "Manual tracking performance suggests tremor is a marker of compensatory mechanisms in Parkinson's disease," abstract presented at *the Neuroscience Conference*, Nov. 12-16, 2011, The Walter E. Washington Convention Center, Washington, DC.

2. N. Baradaran, S. J. Palmer, J. Li, A. Liu, **A. Ashoori**, Z. J. Wang, M. M. K. Oishi, and M. J. McKeown, "Differing Biological Substrates of Manual Tracking Performance in Parkinson's Disease Subtypes," poster presented at the *15th International Congress of Parkinson's Disease and Movement Disorders (MDS 2011)*, June 5-9, 2011, The Metro Toronto Convention Centre, Toronto, Canada.

1. M. M. K. Oishi, **A. Ashoori**, and M. J. McKeown, "Characterizing Motor Performance in Parkinson's Disease: Hybrid Systems and Manual Pursuit Tracking," poster presented at *the 1st International Symposium on System Approaches to Parkinson's Disease, Hamilton Institute - National University of Ireland*, Aug. 2010, Maynooth, Ireland.

STUDENT PUBLICATIONS:

2. A. Ashoori, and H. Mehrabian, "Optimizing Fuzzy Controller of Inverse Pendulum System Using Genetic Algorithm," presented at *the 2nd Annual Symposium of Young Researchers*, March, 2006, ECE Department, University of Tehran, Iran.

1. A. Ashoori, and A. Nouri, "Robot Navigation in Dynamic Environments," presented at *the 1st Annual Symposium of Young Researchers*, March, 2005, ECE Department, University of Tehran, Iran.

TECHNICAL REPORTS:

1. M. Salimi, **A. Ashoori**, and F. Alizadeh, "Design of a Monitoring System for Pneumatic Equipments in Paint Circulation Salon (I)," technical report of a part-time job in Iran Khodro Company, Jan. 2007, Tehran, Iran.

WORK EXPERIENCES:

13. Fundraiser in solidarity with children fighting with cancer. Shaved my head on the day of Persian New Year and raised 3900$ (my goal was 1000$); March 2013

12. Volunteered as 'Shavee' in 'Norooz Fundraising' event for balding in solidarity with children fighting with cancer. Shaved my head on the day of Persian New Year and raised 1300$ (my goal was 1000$); March 2012

11. Volunteered as 'Table Supervisor' for Vancouver Robson Square summertime dance series; July &Aug. 2011

10. Participant in the mentorship program of ECE Graduate Students Association (ECEGSA) as a mentor; Sept. 2010, Sept. 2011

9. Working in the Control, Robotics, and Biomed. Lab., University of British Columbia, Vancouver, Canada; Research Assistant; Sept. 2008 – present

- Modeling and control of Parkinson's disease.

8. Holding the position of VP of Student Affairs in Graduate Students Association of ECE Dept. (ECEGSA) in University of British Columbia, Vancouver, Canada; Apr. 2010- Apr. 2011

- Organizing events and assisting students.
- Holding an "Industry/Students Networking night" event
- Organizing technical workshops and seminars

7. Holding the position of President in TRA (Thunderbird Residence Association); Sept. 2010- Sept. 2011

- Organizing events and assisting residents.

6. Holding the position of Vice President in TRA (Thunderbird Residence Association); Sept. 2009- Sept. 2010

- Organizing events and assisting residents.

5. Holding the position of Residence Life Office Manager in TRA (Thunderbird Residence Association); May 2009- Aug. 2009

- Lending resident sports equipments, DVDs, etc.

4. Working in the Instrumentation and Industrial Control Lab., University of Tehran, Tehran, Iran; Research Assistant; May. 2007 – Aug. 2008

- Design of a predictive controller for penicillin production.

3. Working in Farayand Tadbir Company, Tehran, Iran; Automation and Instrumentation Engineer; Nov. 2006 – Apr. 2007

- Programming PLC S7-300 for some plants in Sarcheshmeh Copper Complex Automation Project.
- Sensor Selection for some plants in Sarcheshmeh Copper Complex Automation Project.

2. Working in Iran Khodro Company, Tehran, Iran; Instrumentation Engineer; Aug. 2006 – Jan. 2007

- Design of a monitoring system for pneumatic equipments in Paint Circulation Salon (I).

Sensor Selection for pneumatic parts in Paint Circulation Salon (I).

1. Working in Qeshm Voltage Company, Tehran, Iran; Internship; July 2005 – Sept. 2005

- Familiarity with mini-PLC, LOGO programming software, LOGO SOFT COMFORT.
- Familiarity with PLC S7-200 programming software, MICROWIN.
- Familiarity with PLC S7-300, S7-400 programming software, SIMATIC MANAGER.

TEACHING EXPERIENCES:

Fall 2003	**Teaching Assistant,**	*University of Tehran*	**C++ Programming**
Instructor: Dr. A. M. Pourpak			
Fall 2004	**Teaching Assistant,**	*University of Tehran*	**Numerical Computations**
Instructor: Dr. A. M. Pourpak			
Spring 2005	**Teaching Assistant,**	*University of Tehran*	**Numerical Computations**
Instructor: Dr. A. M. Pourpak			
Fall 2005	**Teaching Assistant,**	*University of Tehran*	**Numerical Computations**
Instructor: Dr. A. M. Pourpak			
Spring 2006	**Teaching Assistant,**	*University of Tehran*	**Linear Control Systems**

Instructor: Dr. F. Bahrami
Spring 2006 Teaching Assistant, *University of Tehran* **Electronics Lab. (I)**
Instructor: Dr. B. Forouzandeh
Fall 2006 Teaching Assistant, *University of Tehran* **Linear Control Systems**
Instructor: Dr. F. Bahrami
Fall 2006 Teaching Assistant, *University of Tehran* **Electronics Lab. (I)**
Instructor: Dr. B. Forouzandeh
Spring 2007 Teaching Assistant, *University of Tehran* **Linear Algebra**
Instructor: Dr. F. Rajaei
Spring 2007 Teaching Assistant, *University of Tehran* **Nonl. & Digital Control**
Instructor: Dr. M. A. Rasouli
Fall 2007 Teaching Assistant, *University of Tehran* **Electrical Circuits (I)**
Instructor: Prof. P. Jabedar Maralani
Fall 2007 Teaching Assistant, *University of Tehran* **Linear Control Systems**
Instructor: Prof. P. Jabedar Maralani
Fall 2007 Teaching Assistant, *University of Tehran* **Linear Algebra**
Instructor: Dr. F. Bahrami
Spring 2008 Teaching Assistant, *University of Tehran* **Instrum. & Ctrl Elements**
Instructor: Prof. B. Moshiri
Spring 2008 Teaching Assistant, *University of Tehran* **Linear Control Systems**
Instructor: Dr. F. Bahrami
Spring 2008 Instructor, *Islamic Azad University of Parand* **Electrical Circuits Lab.**
Spring 2008 Instructor, *Islamic Azad University of Parand* **Electronics Lab.**
Spring 2009 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Prof. G. Dumont
Fall 2009 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Dr. L. Stocco
Spring 2010 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Dr. M. Oishi
Fall 2010 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Dr. L. Stocco
Spring 2011 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Dr. F. Karim
Summer 2011 Teaching Assistant,*University of British Columbia* **Computation in Eng.**
Instructor: Dr. F. Agharebparast
Fall 2011 Teaching Assistant, *University of British Columbia* **Computation in Eng.**
Instructor: Dr. F. Agharebparast
Spring 2012 Teaching Assistant, *University of British Columbia* **Systems&Control**
Instructor: Dr. F. Agharebparast

COMPUTER ENVIRONMENT FAMILIARITIES:

- **MATLAB**: (SIMULINK, m-file programming, image processing toolbox, fuzzy logic toolbox, system identification toolbox).
- **Simulation Software**: (SIMATIC MANAGER, MICROWIN, HSPICE, PSPICE, ORCAD, MODELSIM, QUARTUS).
- **Programming Languages**: (C/C++, Pascal, Assembly, HTML, Verilog).
- **Operating Systems and Microsoft Office**: (Microsoft Windows 98/2000/NT, MS-DOS, Word, Excel, PowerPoint, FrontPage, Visio, LATEX).
- **Graphic and Web Development Tools**: (FrontPage, Adobe Photoshop).

LANGUAGE SKILLS:

- Farsi : Native
- English : TOEFL(iBT): 97/120 ; Reading 26/30 , Listening 25/30 , Speaking 24/30 , Writing 22/30 . (taken in 2007)
  GRE: Verbal : 330/800, Quantitative : 800/800, Analytical Writing : 3/6. (taken in 2008)
  IELTS: Listening: 8.5/9, Reading: 8/9, Writing: 6.5/9, Speaking 6.5/9. (taken in 2010)
- German : Familiar
- Arabic : Familiar

HONORS AND AWARDS:

- Won student travel support award for the 49th IEEE Conference on Decision, and Control (CDC 2010), Dec. 15-17, 2010, Atlanta, GA, US.
- Admitted to The University of British Columbia (and also won Graduate Entrance Scholarship, which is offered to 13 PhD admitted students in this university annually), Sep. 2008.
- Entered University of Tehran (Ranked 57th among more than 10,000 applicants in nationwide university entrance exam for *MSc* degree), Sep. 2006.
- Entered University of Tehran (Ranked 273rd among more than 400,000 applicants in nationwide university entrance exam for *BSc* degree), Sep. 2002.
- Selected as "Exceptional Talents" by National Organization of Educational Testing, Sep. 2002.
- Won acceptance in the first stage of nationwide competition to select national "mathematics" Olympiad team, Winter 2000.

PROFESSIONAL ACTIVITY:

- Designer of course webpage, "Linear Algebra," University of Tehran, Fall 2007.
- Technical reviewer of the 4th Canadian Student Conference on Biomedical Computing (CSCBC 09), Vancouver, Canada, Feb. 2009.
- Technical reviewer of the Journal of Applied Mathematical Modeling, Nov. 2009, July 2011.
- Technical reviewer of the Journal of Mathematics and Computers in Simulation, Jan. 2010.
- Technical reviewer of the 23rd Canadian Conference on Electrical and Computer Engineering (CCECE 2010), Calgary, Canada, Jan. 2010.
- Technical reviewer of the 5th Canadian Student Conference on Biomedical Computing and Engineering (CSCBCE 2010), Waterloo, Canada, Mar. 2010.
- Technical reviewer of the 49th IEEE Conference on Decision and Control (CDC 2010), Atlanta, GA, USA, Apr. 2010.
- Technical reviewer of the IEEE 7th International Colloquium on Signal Processing & its Applications (CSPA 2011), Penang, Malaysia, Jan. 2011.
- Technical reviewer of the 23rd Canadian Congress of Applied Mechanics (CANCAM 2011), Vancouver, Canada, Feb. 2011.
- Technical reviewer of the 6th Canadian Student Conference on Biomedical Computing and Engineering (CSCBCE 2011), Western Ontario, Canada, Mar. 2011.
- Technical reviewer of the IEEE International Conference on Control System, Computing and Engineering (ICCSCE 2011), Penang, Malaysia, Sept. 2011.
- Technical reviewer of The Chemical Industry and Chemical Engineering Quarterly Journal, Dec. 2011.

- Technical reviewer of The Nonlinear Analysis: Modeling and Control Journal, Mar. 2012.
- Technical reviewer of the 51st IEEE Conference on Decision and Control (CDC 2012), Maui, Hawaii, USA, Apr. 2012.
- Technical reviewer of the IEEE Symposium on Industrial Electronics and Applications (ISIEA 2012), Bandung, Indonesia, Apr. 2012.
- Technical reviewer of the IEEE Conference on Control, Systems, and Industrial Informatics (ICCSII 2012), Bandung, Indonesia, Apr. 2012.
- Technical reviewer of Bioprocess and Biosystems Engineering Journal, May 2012.
- Technical reviewer of Chemical and Biochemical Engineering Quarterly Journal, June 2012.
- Technical reviewer of the Journal of Biomedicine and Biotechnology, July 2012.
- On the Technical Program Committee of 2nd International Conference on Biomedical Engineering and Biotechnology (iCBEB 2013), Wuhan, China, May 2013.
- Technical reviewer of the Journal of Numerical Algebra, Control, and Optimization, May 2013.

MEMBERSHIP:

- Graduate Student Member, IEEE; Oct. 2008 - present
- Honorary Research Associate of the Australian Institute of High Energetic Materials; Mar. 2011 - present
- Member, Alumni Association of Faculty of Engineering, University of Tehran; Sept. 2006 - present

WORKSHOPS, TECHNICAL CONFERENCES, AND SHORT COURSES ATTENDED:

- Participant in the **1st Iranian Seminar of Control Engineering**, Dec. 2002, ECE Dept., University of Tehran, Tehran, Iran.
- Participant in the workshop of "**Image and Video Processing**," Aug. 2003, ECE Dept., University of Tehran, Tehran, Iran.
- Participant in the workshop of "**LOGO Programming**," Aug. 2005, Qeshm Voltage Company, Tehran, Iran.
- Participant in the workshop of "**PLC S7-200 Programming**," Aug. 2005, Qeshm Voltage Company, Tehran, Iran.
- Participant in the **4th Conference on Machine Vision and Image Processing** (*Mvip 2007*), Feb. 14-15, 2007, Mashhad, Iran.
- Participant in the **1st Joint Conference on Intelligent Systems and Fuzzy Systems** (*Isfs 2007*), Aug. 29-31, 2007, Mashhad, Iran.
- Participant in the seminar of "**Advanced Programming and Object-Oriented Programming with MATLAB,**" Oct. 2008, University of British Columbia, Vancouver, Canada.
- Participant in the "**Presentation Skills Workshop,**" Feb. 2009, University of British Columbia, Vancouver, Canada.
- Participant in a 3-day seminar of "**Entrepreneurship,**" May 2009, University of British Columbia, Vancouver, Canada.
- Participant in the **49th IEEE Conference on Decision, and Control (CDC 2010)**, Dec. 15-17, 2010, Atlanta, GA, US.

ACADEMIC PROJECTS:

- Phonebook for Comprehensive Personal Data, C++ Programming — Fall 2002
- Scientific Calculator, Assembly language — Fall 2004

- § Design of a Predictive Control of DC Motor of an Artificial Fox Chasing a Random-accelerated Rabbit, MATLAB Programming — Fall 2004
- § Design of an AC Function Generator for P.L.C Programming, SIMATIC MANAGER — Fall 2005
- § Fuzzy Image Fusion Application in Detecting Coronary Layers in Intravascular Ultrasound (IVUS) Pictures — Fall 2006
- § Design of a Robust Iterative Learning Controller (ILC) for a 2nd order plant — Fall 2006
- § Design of an Explicit Piece-wise Affine Controller for Constrained Nonlinear Systems — Spring 2007
- § Design of a MIMO PID for Disturbed Multivariable Systems — Spring 2007
- § Simulation of a Fed-batch Fermentation Process; Penicillin Production — Spring 2007
- § Characterization of tracking Error in Parkinson's Disease Patients — Fall 2008

GRADUATE COURSES:

- § Advanced Instrumentation : 19/20
- § Fuzzy Logic : 19.5/20
- § Robust Control : 18/20
- § Control of Stochastic Process : 17/20
- § Optimal Control : 16.9/20
- § Control of Multivariable Systems : 20/20
- § Advanced Industrial Control : 18.5/20
- § Adaptive Control : 17.75/20
- § M.Sc. Seminar : 20/20
- § Pattern Recognition : Audited
- § Optimization Methods : 93/100
- § Nonlinear Control Systems : 87/100
- § Statistical Signal Processing : 85/100

EXTRACURRICULAR ACTIVITIES AND INTERESTS:

- § Football, volleyball, ping-pong, chess, mountain climbing, hiking, bowling.
- § Movies, music, reading poems and Persian literature
- § Member of 'Kaskin' team in UBC futsal league (Championship in Nov 2012)
- § Soccer organizer for department of electrical engineering in UBC
- § Championship of UBC Persian Club futsal tournament (Oct 2011) and also top-scorer of the tournament (7 goals)
- § Runner-up of UBC Grassroot futsal tournament (Feb 2012) and also won top-scorer award of the tournament (11 goals)

REFERENCES:

- § Provided upon request

P E R M A N E N T A D D R E S S : UNIT.4, NO.85, SQ.73, JANBAZAN GHARBI AVE. TEHRAN, IRAN
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