

Binh P. Nguyen

Curriculum Vitae

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Education

2007-2012 **Ph.D.** (*Electrical & Computer Engineering*) National University of Singapore
2002-2004 **M.Sc.** (*Information Processing & Communications*) Hanoi University of Science and Technology
1997-2002 **B.Eng.** (Hons.) (*Information Technology*) Hanoi University of Science and Technology

Research Interests

- Image Analysis and Visualization
- Health Data Sciences and Informatics
- Machine learning and Interdisciplinary Computing
- Multimedia Analytics
- Human-Machine Systems

Appointments

2015–present **Research Fellow** Centre for Computational Biology, Duke-NUS Medical School
2012–2015 **Research Fellow** Department of Mechanical Engineering, NUS
2011–2012 **Research Associate** Department of Mechanical Engineering, NUS
2007–2011 **Research Scholar** Department of Electrical & Computer Engineering, NUS
2002–2007 **Lecturer** School of Information and Communication Technology (SoICT), HUST

Honors and Awards

2016 **Best Student Paper Award**, IEEE International Conference on Systems, Man, and Cybernetics, Hungary.
2016 **Poster Prize**, BioImage Informatics Conference, Singapore.
2015 **Junior Research Gold Award**, Neuroscience Academic Clinical Program Research Day, National Neuroscience Institute, Singapore.
2014 **Best Poster Award (Grand Prize)**, GPU Technology Workshop South East Asia, Singapore.
2007 **Certificate of Merit** (for working achievements), HUST, Vietnam.
2005 **Second Prize**, Science and Technology Innovations, HUST, Vietnam.
2005 **Third Prize**, “Vietnam Intelligence” software contest, Vietnam.
2002 **Second Prize**, “Vietnam Intelligence” software contest, Vietnam.
2002 **Certificate of Merit** (for excellent academic results during the course 1997–2002), HUST, Vietnam.
2000 **First Prize**, “Students with Information Technology” software contest, HUST, Vietnam.
1999 **Second Prize**, National Informatics Olympiad, Vietnam.

Scholarships

2007–2011 **NUS Research Scholarship**, NUS, Singapore.
2007–2011 **AUN/SEED-Net Scholarship**, ASEAN University Network (AUN) and Southeast Asia Engineering Education Development Network (SEED-Net) Project, Japan International Cooperation Agency (JICA) and ASEAN Foundation.
2001 **Excellent Student Scholarship**, Canada Telecom, Canada.
2000 **Excellent Student Scholarship**, SAMSUNG, Korea.
1998–2002 **Undergraduate Scholarship**, HUST, Vietnam.

Professional Activities

Editorial Service

- Associate Editor, *International Journal of Speech and Language Processing*, Bioinfo Publications.
- Editorial Board Member, *American Journal of Biomedical Science and Engineering*, American Association for Science and Technology.
- Editorial Board Member, *International Journal of Artificial Intelligence and Expert Systems*, Computer Science Journals.
- Editorial Board Member, *International Journal of Computer Science and Information Security*.

Publication Committee Member, Program Committee Member and Session Co-Chair

- The 11th Anniversary Asian Conference on Computer Aided Surgery (ACCAS 2015), Singapore.

Program Committee Member

- The 2017 International Conference on Advanced Technologies Enhancing Education (ICAT2E 2017), 18-20 Mar 2017, Qingdao, China.
- The 7th Symposium on Information and Communication Technology (SoICT 2016), 8-9 Dec 2016, Hochiminh, Vietnam.
- The International Conference on Recent Advancement in Computer, Communication and Computational Sciences (ICRACCCS 2016), 25-26 Nov 2016, Udaipur, India.
- The 5th EAI International Conference on Context-Aware Systems and Applications (ICCASA 2016), 24-25 Nov 2016, Thu Dau Mot, Vietnam.
- The 2nd International Conference on Science, Engineering and Environment (SEE-Osaka 2016), 21-23 Nov 2016, Osaka, Japan.
- The International Conference on Artificial Intelligence and Cognitive Computing (AICC 2016), 21-23 Oct 2016, Greater Noida, India.
- The 2016 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2016 Junior), 9-12 Oct 2016, Budapest, Hungary.
- International Conference on Computer, Communication and Computational Sciences (ICCCCS 2016), 12-13 Aug 2016, Ajmer, India.
- The IEEE International Conference on Computing, Communication and Automation (ICCCA 2016), 29-30 Apr 2016, Uttar Pradesh, India.
- The 2nd Annual International Conference on Network and Information Systems for Computers (ICNISC 2016), 15-17 Apr 2016, Wuhan, China.
- The 12th IEEE Colloquium on Signal Processing and its Applications (CSPA 2016), 4-6 Mar 2016, Malacca, Malaysia.
- The 6th Symposium on Information and Communication Technology (SoICT 2015), 3-4 Dec 2015, Hue, Vietnam.
- The 1st International Conference on Science, Engineering and Environment (SEE-Mie 2015), 19-21 Nov 2015, Mie, Japan.
- The International Conference on Advanced Internet Technology (ICAIT 2015), 1-3 Oct 2015, Phuket, Thailand.
- The IEEE International Conference on Computing, Communication and Automation (ICCCA 2015), 15-16 May 2015, Uttar Pradesh, India.
- The IEEE International Conference on Computer and Computational Sciences (ICCCS 2015), 27-29 Jan 2015, Uttar Pradesh, India.
- The 5th International Conference on Computer and Communication Technology (ICCCT 2014), 26-28 Sep 2014, Uttar Pradesh, India.
- The 5th Symposium on Information and Communication Technology (SoICT 2014), 4-5 Dec 2014, Hanoi, Vietnam.

Doctoral Thesis Reviewer

- A Ph.D. thesis about abnormal event detection in video surveillance, Queensland University of Technology, Australia.

Reviewer for International Journals

- IEEE Transactions on Human-Machine Systems, IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Mechatronics, Biomedical Signal Processing and Control, International Journal of Computer Assisted Radiology and Surgery, International Journal of Cardiovascular Imaging, Circuits, Systems & Signal Processing, Information Fusion, etc.

Reviewer for International Conferences

- SoICT 2011–2016, ICCCA 2015–2016, ICBEB 2016, CSPA 2016, ACCAS 2015, ICIC 2015, ICCAS 2015, ICCCT 2013–2014, EuroVis 2011, TENCON 2009, etc.

Publications

(Google Scholar link: <http://scholar.google.com.sg/citations?user=dMkk-asAAAAJ>)

(* denotes corresponding author)

Refereed Journal Papers

1. Do, T. T. T. and B. P. Nguyen (2016). Comments on and corrections to “Hardware-software co-design architecture for Joint Photo Expert Graphic XR encoder”. *IET Image Processing* 10(9). [SCI, IF 0.860], 681–682. doi: 10.1049/iet-ipr.2015.0572.
2. Do, T. T. T. and B. P. Nguyen (2016). Comments on and corrections to “Unified VLSI architecture for photo core transform used in JPEG XR”. *Electronics Letters* 52(1). [SCI, IF 0.854], 33. doi: 10.1049/el.2015.2869.
3. Nguyen, B. P., H. Heemskerk, P. T. C. So, and L. Tucker-Kellogg (2016). Superpixel-based segmentation of muscle fibers in multi-channel microscopy. *BMC Systems Biology*. [SCI, IF 2.213] [accepted].
4. Cai, L., B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2015). A two-level clustering approach for multidimensional transfer function specification in volume visualization. *The Visual Computer*. [SCI-E, IF 1.060] [published online]. doi: 10.1007/s00371-015-1167-y.
5. Cai, L., B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2015). Rule-enhanced transfer function generation for medical volume visualization. *Computer Graphics Forum* 34(3). [SCI-E, IF 1.542], 121–130. doi: 10.1111/cgf.12624.
6. Nguyen*, B. P., W.-L. Tay, and C.-K. Chui (2015). Robust Biometric Recognition From Palm Depth Images for Gloved Hands. *IEEE Transactions on Human-Machine Systems* 45(6). [SCI-E, IF 1.800], 799–804. doi: 10.1109/THMS.2015.2453203.
7. Wen, R., W.-L. Tay, B. P. Nguyen*, C.-B. Chng, and C.-K. Chui (2014). Hand gesture guided robot-assisted surgery based on a direct augmented reality interface. *Computer Methods and Programs in Biomedicine* 116(2). [SCI, IF 1.862], [Editor’s choice archive], 68–80. doi: 10.1016/j.cmpb.2013.12.018.
8. Cai, L., W.-L. Tay, B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2013). Automatic Transfer Function Design for Medical Visualization using Visibility Distributions and Projective Color Mapping. *Computerized Medical Imaging and Graphics* 37(7–8). [SCI-E, IF 1.385], 450–458. doi: 10.1016/j.compmedimag.2013.08.008.
9. Nguyen*, B. P., W.-L. Tay, C.-K. Chui, and S.-H. Ong (2012). A Clustering-Based System to Automate Transfer Function Design for Medical Image Visualization. *The Visual Computer* 28(2). [SCI-E, IF 1.060], 181–191. doi: 10.1007/s00371-011-0634-3.
10. Nguyen*, B. P., C.-K. Chui, S.-H. Ong, and S. Chang (2011). An Efficient Compression Scheme for 4-D Medical Images using Hierarchical Vector Quantization and Motion Compensation. *Computers in Biology and Medicine* 41(9). [SCI, IF 1.521], 843–856. doi: 10.1016/j.compbiomed.2011.07.003.
11. Wang, Z., B. P. Nguyen*, C.-K. Chui, J. Qin, C.-H. Ang, and S.-H. Ong (2010). An Efficient Clustering Method for Fast Rendering of Time-varying Volumetric Medical Data. *The Visual Computer* 26(6–8). [SCI-E, IF 1.060], 1061–1070. doi: 10.1007/s00371-010-0483-5.

Papers in Conference Proceedings

1. Chen, X., B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2016). Automated Brain Tumor Segmentation using Kernel Dictionary Learning and Superpixel-level Features. In: *Proceedings of the International Conference on Systems, Man, and Cybernetics (SMC Junior 2016)*. [Best Student Paper Award]. Budapest, Hungary: IEEE, pp.1–6.
2. Pratondo, A., B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2015). Pancreas Segmentation on Non-contrast-enhanced CT Scan Images. In: *Proceedings of the AUN/SEED-Net Regional Conference for Computer and Information Engineering*. Hanoi, Vietnam, pp.1–5.

3. Chui, C.-K., B. P. Nguyen, and R. Wen (2014). Development of a Cognitive Engine for Balancing Automation and Human Control of Surgical Robotic System. In: *Proceedings of the 11th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2014)*. Kuala Lumpur, Malaysia: IEEE, pp.13–17.
4. Pratondo, A., B. P. Nguyen, C.-K. Chui, and S.-H. Ong (2014). Vocal Cord Segmentation from CT Images using Machine Learning. In: *Proceedings of the 10th Asian Conference on Computer Aided Surgery (ACCAS 2014)*. Fukuoka, Japan, pp.40–41.
5. Wen, R., B. P. Nguyen, and C.-K. Chui (2014). Non-Rigid Organ Motion Tracking using Adaptive Shape Model. In: *Proceedings of the 10th Asian Conference on Computer Aided Surgery (ACCAS 2014)*. Fukuoka, Japan, pp.18–19.
6. Chui, C.-K., B. P. Nguyen, and C.-B. Chng (2013). Intelligent visual and haptic cues for shared-control microrobot-assisted microsurgeries. In: *Proceedings of the 9th Asian Conference on Computer Aided Surgery (ACCAS 2013)*. Tokyo, Japan, pp.42–43.
7. Wen, R., B. P. Nguyen, C.-B. Chng, and C.-K. Chui (2013). In Situ Spatial AR Surgical Planning Using Projector-Kinect System. In: *Proceedings of the Symposium on Information and Communication Technology (SoICT 2013)*. Vol. 836. ICPS. Danang, Vietnam: ACM, pp.164–171.
8. Wu, J., C.-K. Chui, B. P. Nguyen, and C.-L. Teo (2013). Real-Time Rendering of Drugs Injection and Interactive Simulation of Vessel Deformation Using GPU. In: *Proceedings of 35th Annual International IEEE EMBS Conference (EMBS 2013)*. Osaka, Japan: IEEE, pp.4569–4572.
9. Chui, C.-K., B. P. Nguyen, Y. Ho, Z. Wu, M. Nguyen, G.-S. Hong, D. Mok, S. Sun, and S. Chang (2012). Embedded Real-Time Model Predictive Control for Glucose Regulation. In: *Proceedings of the World Congress on Medical Physics and Biomedical Engineering (WC 2012)*. Ed. by M. Long. Vol. 39. IFMBE Proceedings. Beijing, China: Springer, pp.1437–1440.
10. Ho, Y., B. P. Nguyen, and C.-K. Chui (2012). Ant Colony Optimization for Model Predictive Control for Blood Glucose Regulation. In: *Proceedings of the 3rd Symposium on Information and Communication Technology (SoICT 2012)*. Vol. 638. ICPS. Halong, Vietnam: ACM, pp.214–217.
11. Le, D.-P. and B. P. Nguyen (2012). Fast Point Quadrupling on Elliptic Curves. In: *Proceedings of the 3rd Symposium on Information and Communication Technology (SoICT 2012)*. Vol. 638. ICPS. Halong, Vietnam: ACM, pp.218–222.
12. Nguyen, B. P., Y. Ho, Z. Wu, and C.-K. Chui (2012). Implementation of Model Predictive Control with Modified Minimal Model on Low-power RISC Microcontrollers. In: *Proceedings of the 3rd Symposium on Information and Communication Technology (SoICT 2012)*. Vol. 638. ICPS. Halong, Vietnam: ACM, pp.165–171.
13. Nguyen, B. P., W.-L. Tay, C.-K. Chui, and S.-H. Ong (2011). Automatic Transfer Function Design for Volumetric Data Visualization using Clustering on LH Space. In: *Proceedings of Computer Graphics International 2011 (CGI 2011)*. Ottawa, Ontario, Canada, pp.1–10.
14. Do, T. T. T., T. M. Le, B. P. Nguyen, and Y. Ha (2010). Performance-Cost Analyses Software for H.264 Forward/Inverse Integer Transform. In: *Proceedings of the 21st IEEE International Symposium on Rapid System Prototyping (RSP 2010)*. Fairfax, Virginia, USA: IEEE, pp.1–7.
15. Do, T. T. T. and B. P. Nguyen (2010). A High-Accuracy and High-Speed 2-D 8×8 Discrete Cosine Transform Design. In: *Proceedings of the 1st International Conference on Green Computing and the 2nd AUN/SEED-Net Regional Conference on ICT (ICGC-RCICT 2010)*. Yogyakarta, Indonesia, pp.135–139.
16. Nguyen, B. P. and T. T. T. Do (2010). Cross Directional Rectangle Search for Fast Block-Matching Motion Estimation. In: *Proceedings of the 1st International Conference on Green Computing and the 2nd AUN/SEED-Net Regional Conference on ICT (ICGC-RCICT 2010)*. Yogyakarta, Indonesia, pp.132–134.
17. Nguyen, B. P., T. T. T. Do, C.-K. Chui, and S.-H. Ong (2010). Prediction-based Directional Search for Fast Block-Matching Motion Estimation. In: *Proceedings of the 1st Symposium on Information and Communication Technology (SoICT 2010)*. Vol. 449. ICPS. Hanoi, Vietnam: ACM, pp.86–91.
18. Qin, J., W.-M. Pang, B. P. Nguyen, D. Ni, and C.-K. Chui (2010). Particle-Based Simulation of Blood Flow and Vessel Wall Interactions in Virtual Surgery. In: *Proceedings of the 1st Symposium on Information and Communication Technology (SoICT 2010)*. Vol. 449. ICPS. Hanoi, Vietnam: ACM, pp.128–133.
19. Li, B. N., P. B. Nguyen, J. Qin, L. Yang, S.-H. Ong, S. Chang, and C.-K. Chui (2009). Image Processing and Modeling for Active Needle Steering in Liver Surgery. In: *Proceedings of the International Asia Conference on Informatics in Control, Automation and Robotics 2009 (CAR 2009)*. Bangkok, Thailand: IEEE, pp.1–5.

20. Nguyen, B. P., C.-K. Chui, S.-H. Ong, and S. Chang (2009). Vascular Flow Rendering for Interactive Simulation of Contrast and Drugs Injection. In: *Proceedings of the IEEE Region 10 Conference 2009 (TENCON 2009)*. Singapore: IEEE, pp.1–5.
21. Nguyen, B. P., T. Yang, F. Leong, S. Chang, S.-H. Ong, and C.-K. Chui (2008). Patient Specific Biomechanical Modeling of Hepatic Vasculature for Augmented Reality Surgery. In: *Proceedings of the 4th International Workshop on Medical Imaging and Augmented Reality (MIAR 2008)*. Tokyo, Japan, pp.1–9.

Posters and Abstracts

1. Nguyen, B. P., H. Heemskerk, P. T. C. So, and L. Tucker-Kellogg (2016). “Superpixel-based segmentation of muscle fibers in multi-channel microscopy”. In: *BioImage Informatics Conference*. [Poster Prize]. Biopolis, Singapore.
2. Tucker-Kellogg, L., J. Heemskerk, P. So, P. Matsudaira, B. Nguyen, and K. D. Sacadevan (2016). Confetti fluorescence displays muscle regeneration from satellite cells in vivo: A novel platform for assessing stem cell function intravitaly. In: *the 28th Annual Meeting of the Wound Healing Society*. Vol. 24. Wound Repair and Regeneration 2. [Abstract]. Atlanta, GA, USA: Wiley, pp.A26.
3. Goh, J.-J., B. P. Nguyen, C.-K. Chui, and W.-H. Ng (2015). “Predicting optimal craniotomy opening area using Support Vector Machine to reduce incidence of brain herniation post durotomy”. In: *Neuroscience Academic Clinical Program Research Day*. [Abstract - Gold Award]. Singapore: The National Neuroscience Institute of Singapore.
4. Nguyen, B. P., L. Cai, X. Chen, S.-H. Ong, and C.-K. Chui (2015). “GPU Accelerated Knowledge Discovery for Importance-Driven Medical Volume Visualization”. In: *GPU Technology Conference Asia South*. [Poster]. Singapore: NVIDIA Singapore.
5. Nguyen, B. P. and L. Tucker-Kellogg (2015). “Vesicle Detection in Video Microscopy”. In: *the 7th Annual DUNES (DUKE-NUS Early Career Scientists Association) Symposium*. [Poster]. Duke-NUS Medical School, Singapore.
6. Nguyen, B. P., R. Wen, L. Cai, J. Wu, S.-H. Ong, C.-L. Teo, and C.-K. Chui (2015). “Accelerated Medical Computing Toolkit and GPU Accelerated Importance-driven Volume Visualization”. In: *GPU Technology Conference (GTC 2015)*. [Poster]. San Jose, California, USA: NVIDIA Corporation.
7. Nguyen, B. P., L. Cai, C.-K. Chui, and S.-H. Ong (2014). “GPU Accelerated Transfer Function Generation for Importance-Driven Volume Visualization”. In: *GPU Technology Workshop South East Asia*. [Best Poster Award]. Singapore: NVIDIA Singapore.
8. Nguyen, B. P., R. Wen, L. Cai, J. Wu, A. Pratondo, G. Ujjaval, and C.-K. Chui (2014). “Accelerated Computing Toolkit for Medical Simulation”. In: *GPU Technology Workshop South East Asia*. [Poster]. Singapore: NVIDIA Singapore.

Others

1. Nguyen, B. P., M. H. Dinh, and Q. P. Nguyen (2007). Visual and Online Lesson Editor for Teachers. *Automation Today* 75(5). [in Vietnamese], 64–66.
2. Nguyen, B. P. and L. V. Trinh (2006). Vietnamese Speech Recognition using Subword Models and Test Experiments for Comparing Some Methods of Vietnamese Recognition. In: *Proceedings of the 3rd National Symposium on Research, Development and Application of Information and Communication Technology (ICT.rda’06)*. [in Vietnamese]. Hanoi, Vietnam, pp.187–196.
3. Nguyen, K. K., T. A. Nguyen, and B. P. Nguyen (2004). Test and Examination Assisting System. In: *Proceedings of the 2nd National Symposium on Research, Development and Application of Information and Communication Technology (ICT.rda’04)*. [in Vietnamese]. Hanoi, Vietnam, pp.291–298.
4. Nguyen, B. P., L. V. Trinh, and E. Castelli (2003). Real-time system for isolated Vietnamese words recognition. In: *Proceedings of the 1st National Symposium on Research, Development and Application of Information and Communication Technology (ICT.rda’03)*. [in Vietnamese]. Hanoi, Vietnam, pp.310–316.

Selected Software/Apps/Games

- | | | |
|------|--|------------------|
| 2016 | Monster World – Fire <ul style="list-style-type: none"> • A pocket monster RPG game on Android. More than 500,000 installations from Google Play. • Developed an advanced anti-crack module for the game. | bigame (Vietnam) |
|------|--|------------------|

- 2015 **Journey to the West – Flaming Mountains** bigame (Vietnam)
- A mobile game on Android inspired by one of the Four Great Classical Novels of Chinese literature. More than 100,000 installations from Google Play.
 - Generated intelligent behaviors in non-player characters.
- 2006 **SISU** Anh Dao company (Vietnam)
- Sale management software for the sole distributor in Vietnam for Kangnai Group, a leading shoes manufacture in China.
- 2005 **BackUp Adapter (BUA)** Auto Recovery Technology Corporation (Japan)
- A hardware-software solution that helps users to backup data from their mobile phones to our innovative device or PCs, and allows them to edit and restore data back to their phones. The product then won the 2nd prize in the national software contest “Vietnam Intelligence 2006”.
 - Developed the communication module between PCs and mobile phones.
- 2004 **ht tp: //bachkim.vn** Platin JSC. (Vietnam)
- Designed and implemented a website for a leading educational software company in Vietnam.
- 2002–2004 **Educational Software for Lower Secondary Schools**
- Developed a series of teaching-aid software for teachers in lower secondary schools, which was a part of the “Lower Secondary Education Development Project” operated by the Ministry of Education and Training.
 - Co-authored the software entitled “Visual and Online Lesson Editor for Teachers (ViOLET)” which won the 3rd prize in the national software contest “Vietnam Intelligence 2005”, and the 2nd prize in the contest “Science and Technology Creative Products 2005” for the 50th anniversary of HUST.
- 2002–2004 National project: **Advanced Systems and Human-Machine Interaction** SoICT, HUST
- Analyzed, designed and implemented the “Test and Examination System (TES)” for the sub-project “Bach Khoa Virtual Interactive Educational Web-based System (BKviews)”.
 - Developed a Vietnamese speech recognition system for the sub-project “Speech-based Human-Machine Interaction”.
- 2002 **Information Collecting and Parsing System (ICPS)**
- A system that helps users to collect information from any source on the Internet.
 - Won the 2nd prize in the national software contest “Vietnam Intelligence 2002”.

Memberships

Since 2009 Member Institute of Electrical and Electronics Engineers (IEEE)
 Since 2011 Member Biomedical Engineering Society (Singapore)

Languages

Vietnamese Native proficiency
 English Full professional proficiency