

# Jihye Bae

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## Curriculum Vitae

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### Contact Information

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**Address:** Department of Biomedical Engineering  
Florida International University  
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### Education

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**Doctor of Philosophy** ..... Jan. 2010 ~ Aug. 2013  
Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL, USA.  
**Thesis Title:** Kernel Temporal Differences for Reinforcement Learning with Applications to Brain Machine Interfaces.  
**Advisor:** Dr. Jose C. Principe

**Master of Science** ..... Aug. 2008 ~ Dec. 2009  
Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL, USA.  
**Class Projects:** Monkey Motion Classification by Liquid State Machine,  
Pattern Recognition of Features in Wavelet Maps for Classification,  
Delineation of Watersheds in Low-relief Terrains by Using Watershed Transform.  
**GPA:** 3.866/4.0

**Bachelor of Engineering** ..... Mar. 2003 ~ Feb. 2007  
School of Electrical Engineering and Computer Science, Kyungpook National University, Daegu, South Korea.  
**GPA:** 3.92/4.3

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### Experience

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**Postdoctoral Associate** ..... Nov. 2013 ~ Present  
Neuronal Mass Dynamics (NMD) Laboratory, Department of Biomedical Engineering, Florida International University, Miami, FL, USA.  
Supervisor: Dr. Jorge J. Riera

**Research Assistant** ..... Aug. 2010 ~ May 2013  
Computational Neuro-Engineering Laboratory (CNEL), Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL, USA.  
Developing a Nonlinear System for Reinforcement Learning Brain Machine Interfaces.  
PI: Dr. Jose C. Principe  
Supporting Agency: The Defense Advanced Research Projects Agency (DARPA).

**Research Assistant** ..... May ~ Jun. 2009  
Water Resources Engineering Laboratory, Department of Civil Engineering, Keimyung University, Daegu, South Korea.  
Rainfall Recharge Analysis using Shannon's Entropy.

**Volunteer Teaching Assistant** ..... Apr. ~ May 2007  
 Tates Creek High School, Lexington, KY, USA.  
 Teaching Subjects: Geometry and Computer Applications 1.

**Undergraduate Trainee** ..... Jun. ~ Aug. 2005  
 Biomedical Electronics Laboratory, Kyungpook National University, Daegu, South Korea.  
 Observing Research and Getting Overall Knowledge of Bioelectronics.

**Volunteer Tutor** ..... Nov. 2004 ~ Jan. 2006  
 Wolseong Catholic Church, Daegu, South Korea.  
 Teaching Subject: Middle School Mathematics.

**Research Assistant** ..... Apr. 2004 ~ Jan. 2007  
 Water Resources Engineering Laboratory, Keimyung University, Daegu, South Korea.  
 Typesetting and Preparing Presentation Slides.

**Overseas Volunteer Teacher** ..... Jan. ~ Feb. 2004  
 Overseas Volunteer Program of Kyungpook National University, Naujan, Mindoro, Philippines.  
 Teaching Computer Applications to Naujan Technical College and Naujan Municipal High School Students.  
 Assistant Leader of the Computer Education Team.

**Personal Tutor** ..... Nov. 2003 ~ Feb. 2004  
 Teaching Subject: High School Mathematics.

**Distinctions and Awards**

**Achievement Award for New Engineering Graduate Students** ..... 2008 Fall ~ 2009 Fall  
 Department of Electrical and Computer Engineering, University of Florida, Gainesville, FL, USA.

**Outstanding Student Scholarship** ..... 2006 Fall  
 Kyungpook National University, Daegu, South Korea.

**Brain Korea (BK) 21 Scholarship** ..... 2005 Fall  
 Brain Korea (BK) 21, South Korea.

**Outstanding Student Scholarship** ..... 2005 Spring  
 Kyungpook National University, Daegu, South Korea.

**Engineering Incentive Scholarship** ..... 2004 Fall  
 Department of Engineering, Kyungpook National University, Daegu, South Korea.

**Brain Korea (BK) 21 Scholarship** ..... 2004 Spring  
 Brain Korea (BK) 21, South Korea.

**Outstanding Student Scholarship** ..... 2003 Fall  
 Kyungpook National University, Daegu, South Korea.

**Publications**

**Conference Proceedings**

- J. Bae, L. G. Sanchez Giraldo, J. T. Francis, and J. C. Principe, "Correntropy Kernel Temporal Differences for Reinforcement Learning Brain Machine Interfaces," *The International Joint Conference on Neural Networks (IJCNN)*, 2014 (accepted).

- **J. Bae**, L. G. Sanchez Giraldo, E. A. Pohlmeier, J. C. Sanchez, and J. Principe, "A New Method of Concurrently Visualizing States, Values, and Actions in Reinforcement based Brain Machine Interfaces," *The 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2013, pp. 5402-5405.
- A. Brockmeier, L. G. Sanchez Giraldo, M. Emigh, **J. Bae**, J. S. Choi, J. T. Francis, and J. Principe, "Information-Theoretic Metric Learning: 2-D Linear Projections of Neural Data for Visualization," *The 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2013, pp. 5586-5589.
- **J. Bae**, L. G. Sanchez Giraldo, P. Chhatbar, J. T. Francis, J. C. Sanchez, and J. C. Principe, "Stochastic Kernel Temporal Difference for Reinforcement Learning," *IEEE Workshop on Machine Learning for Signal Processing (MLSP)*, 2011, pp. 1-6.
- **J. Bae**, P. Chhatbar, J. T. Francis, J. C. Sanchez, and J. C. Principe, "Reinforcement Learning via Kernel Temporal Difference," *The 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2011, pp. 5662-5665.

### Abstracts

- **J. Bae**, A. Deshmukh, Y. Song, and J. Riera Diaz, "Brain Source Analysis of Interictal Epileptiform Discharges Using a Rat Model of Focal Epilepsy," *The 20th Annual Meeting of the Organization for Human Brain Mapping (OHBM)*, 2014 (accepted).

## Presentations

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### Oral Presentations

- The Pruitt Research Day ..... Nov. 2012  
Department of Biomedical Engineering, University of Florida, Gainesville, FL, USA.  
Title: Kernel Temporal Differences in Reinforcement Learning Brain Machine Interfaces.
- Brain Korea (BK) 21 Seminar ..... Jan. 2012  
School of Electrical Engineering and Computer Science, Kyungpook National University, Daegu, South Korea.  
Title: Reinforcement Learning via Kernel Temporal Difference.

### Poster Presentations

- The 22nd Annual Neuroscience Research Day ..... Dec. 2013  
Miller School of Medicine, University of Miami, Miami, FL, USA.  
Title: A Methodology to Perform Brain Source Imaging in Rats with Focal Epilepsy.
- The 8th Annual Workshop for Women in Machine Learning ..... Dec. 2013  
Co-located with NIPS, Lake Tahoe, NV, USA.  
Title: Correntropy Kernel Temporal Difference for Reinforcement Learning.

## Reviewer

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- Frontiers in Neuroscience, 2014.
- Journal of Magnetics (JOM) as a proceedings paper for the 19th International Conference on Magnetism (ICM) 2012.

## Computer skills

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- Operating Systems: Windows
- Text Processors:  $\LaTeX$
- Software Tools: MS Word, MS PowerPoint, MS Excel, Adobe Photoshop
- Programming Languages: C/C++
- Scientific Computation and Simulation Packages: MATLAB, P-SPICE
- Toolbox for Neuro-science: Brainstorm

## Academic Activities

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- Korean-American Scientists and Engineers Association (KSEA) Member, 2014.
- Conference Volunteer at The 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2011.
- IEEE Student Member, 2011.

## Other Activities

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- 2011 Youth Leader, Choir Member, Volunteer Teacher  
Gainesville Korean Catholic Community, Gainesville, FL, USA.
- Study Group Leader  
Hackers English Academy, Seoul, South Korea.
- 04Spring Secretary, Member  
Inline Skate Club, "In Zeal Bom," Kyungpook National University, Daegu, South Korea.
- Member  
Cartoon Club, "Nem," Kyungpook National University, Daegu, South Korea.

## Second Language Education

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- Department of Electric Electronic Engineering, Bluegrass Community & Technical College, Lexington, KY, USA. GPA: 4.0/4.0
- Center for English as a Second Language at the University of Kentucky, Lexington, KY, USA.
- English Language Centre at University of the Sunshine Coast, Queensland, Australia.

## References

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UPON REQUEST