

CURRICULUM VITAE

Kyongsik Yun

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Ph.D. Candidate

Brain Dynamics Laboratory

Department of Bio and Brain Engineering, KAIST

373-1 Gusong-Dong, Yuseong-Gu,

Daejeon 305-701, Republic of Korea

[EDUCATION]

2006 – Pres. Ph.D. Candidate

Dept. of Bio and Brain Engineering, Korea Advanced Institute of Science and Technology (KAIST)

Relevant Courses : Computational Neuroscience

2002 – 2006 B.S.
(*Summa Cum Laude*)

Dept. of Bio and Brain Engineering, Korea Advanced Institute of Science and Technology (KAIST)

Relevant Courses : Introduction to Bioengineering, General Biochemistry, General Cell Biology, Mathematical Modeling and Simulation, Biomechanics and Analysis, Systems Bioengineering, Computer System, Neural Information Processing Algorithm, Biological Signal Processing, Biological Instrumentation Laboratory, Biotechnology Experiment, Computational geometry

[SKILLS]

Programming skills in MATLAB, C/C++, Java, and Perl. Experienced in fMRI and EEG experimental design and data analysis; AFNI, EEGLAB, and LORETA.

[RESEARCH EXPERIENCE]

2006 – Pres. Graduate Research

Brain Dynamics Laboratory, Dept. of BioSystems, KAIST
Neural correlates of emotion & cognition in ultimatum game. – supervised under Jaeseung Jeong, Ph.D.

2006 – Pres. Graduate Research

Brain Dynamics Laboratory, Dept. of BioSystems, KAIST
Neural correlates of disappointment and elation & Emotion-based prediction of reward and reward-based learning in human decision making. – supervised under Jaeseung Jeong, Ph.D.

2006 – 2006 Graduate Research

Brain Dynamics Laboratory, Dept. of BioSystems, KAIST
Nonlinear analysis including approximate entropy, correlation dimension, lyapunov exponent, power-law exponent, and nonlinear interdependence of tic dynamics in Tourette Syndrome patients. – supervised under Jaeseung Jeong, Ph.D.

2005 – 2006 Graduate Research

Brain Dynamics Laboratory, Dept. of BioSystems, KAIST
Nonlinear analysis of hippocampus local field potentials

(LFPs) in serotonin 1A receptor deficient mice. . – supervised under Jaeseung Jeong, Ph.D.

- | | | |
|--------------|------------------------|---|
| 2005 – 2006 | Internship | NicolelisLab, Dept. of Neurobiology, Biomedical Engineering, and Psychological and Brain Sciences, and Center for Neuroengineering, Duke University Medical Center
<i>Study of brain computer interface (BCI). Analysis of local field potential (LFP) signal for prediction of motor timing in monkey. – supervised under Miguel A. L. Nicolelis, M.D., Ph.D.</i> |
| 2004 – Pres. | Undergraduate Research | Brain Dynamics Laboratory, KAIST
<i>Study of nonlinear dynamics, chaos theory, and addiction. Approximate entropy analysis in methamphetamine dependent patients. – supervised under Jaeseung Jeong, Ph.D.</i> |

[RESEARCH INTERESTS]

Reward, Decision-making, Addiction, and Nonlinear Dynamics
 Understanding the neural bases of decision making in strategic interaction
 Computational modeling of neural networks underlying reward and learning
 Behavioral game theory and neuroeconomics
 Theoretical neuroscience with reinforcement learning, nonlinear dynamics, information theory
 Functional neuroimaging data analysis including fMRI and EEG

[AWARDS]

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|------|---|
| 2007 | Best Poster Award, Korean College of Neuropsychopharmacology |
| 2006 | Young Investigator's Competition 10 Finalist Award, International Federation for Medical and Biological Engineering (IFMBE) |
| 2003 | Global Leader Scholarship, KAIST
Scholarship for top freshmen |
| 2001 | ETRI Scholarship, Electronics and Telecommunications Research Institute
Scholarship for top high school students |

[PUBLICATION]

Journals

Kyongsik Yun*, Hee-Kwon Park*, Do-Hoon Kwon, Sung-Nam Cho, Hyun-Jin Cho, Jaeseung Jeong. "Approximate Entropy Analysis of the EEG in Methamphetamine-dependent Patients" (in preparation)

* the first two authors contributed equally to this article and ordering was determined arbitrary

Seungyeon Kim, **Kyongsik Yun**, and Jaeseung Jeong. "Emotion-based prediction of reward

and reward-based learning in human decision making" (in preparation)

Conference Papers and Presentations

Kyongsik Yun, Dongil Chung, Seungyeon Kim, Hansol Kim, Koeun Lim, Sumin Chang, Jaeseung Jeong. "Electrophysiological Correlates of Fairness in Human Decision-Making", *Organization for Human Brain Mapping*. Chicago, Illinois, USA, June 10 – 14, 2007, Poster Presentation

Kyongsik Yun, Hee-Kwon Park, Do-Hoon Kwon, Sung-Nam Cho, Hyun-Jin Cho, Jaeseung Jeong. "Decreased Cortical Complexity in Methamphetamine Abusers", *Korean College of Neuropsychopharmacology*. Seoul, Republic of Korea, March 16 – 17, 2007, Poster Presentation

Seungyeon Kim, **Kyongsik Yun**, and Jaeseung Jeong. "Neural Correlates of Disappointment in Decision-making in Wheel of Numbers Task: an Event Related fMRI Study", *9th Annual Meeting of the Korean Society for Brain and Neural Science*. Seoul, Republic of Korea, November 2 – 3, 2006, Poster Presentation

Seungyeon Kim, **Kyongsik Yun**, and Jaeseung Jeong. "Neural Correlates of Disappointment and Elation in Decision-making", *Society for Neuroeconomics 2006 Annual Conference*. Park City, Utah, USA, September 7 – 10, 2006, Poster Presentation

Kyongsik Yun, H.K. Park, D.H. Kwon, S.N Cho, J. Jeong. "Decreased Complexity of the EEG in Patients with Methamphetamine Dependence", *IFMBE Proceedings: World Congress on Medical Physics and Biomedical Engineering*. Vol. 14, Seoul, Republic of Korea, August 27 – September 1, 2006, Oral Presentation

Kyongsik Yun, M. A. Lebedev, M. A. L. Nicolelis. "Prediction of Motor Timing using Nonlinear Analysis of Local Field Potentials", *IFMBE Proceedings: World Congress on Medical Physics and Biomedical Engineering*. Vol. 14, Seoul, Republic of Korea, August 27 – September 1, 2006, Oral Presentation

Patents

2001 **Kyongsik Yun**, "Sliding Door Security System", patent No. 0316385, Korea.

[RESEARCH PROJECT]

11/06 – 10/09 **Investigation for Brain Dynamics on Emotion-based Human Decision-making using fMRI and EEG**
Korea Science and Engineering Foundation (KOSEF)
Participating Investigators

05/06 – 04/09 **Development of Early Diagnostic System for Dementias via Simultaneous Measurement of EEG and fMRI**
Korea Advanced Institute of Science and Technology (KAIST)
Participating Investigators

[WORKING EXPERIENCE]

09/06 – Pres. Teaching Assistant, Undergraduate Research Program
Korea Advanced Institute of Science and Technology (KAIST)

- 03/06 – Pres. Teaching Assistant, Department of BioSystems
Korea Advanced Institute of Science and Technology (KAIST)
- 03/06 – 09/06 Teaching Assistant, Science Journalism
Korea Advanced Institute of Science and Technology (KAIST)

[REFERENCES]

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Assistant Professor

Department of Bio and Brain Engineering

Korea Advanced Institute of Science and Technology (KAIST)

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and jointly appointed as an Assistant Professor

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