Beste Filiz Yuksel

CONTACT INFORMATION

Ph.D. Candidate
Computer Science
Tufts University

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INTERESTS

Designing and building new high-performance user interfaces and systems in: human-computer interaction, physiological computing, mood sensing, brain-computer interfaces, information visualization, visual analytics, adaptive interfaces.

EDUCATION

Tufts University, Medford, MA

Ph.D. Candidate, Computer Science **Spring 2012 to Current**

- Advisor: Prof Robert J.K. Jacob
- Research Topic: A new generation of Brain-Computer Interfaces that evaluate and detect real-time brain signals using machine learning classification of functional near infrared spectroscopy (fNIRS) to build adaptable user interfaces.
- Developed adaptive musical systems that respond to pianists' cognitive workload by adding or removing harmonies.
- Currently developing adaptive visualizations that respond to analysts' cognitive state to allow better extraction of crucial information out of large datasets.
- Advising senior undergraduate thesis on facilitating faster and more accurate learning in pianists by adapting the musical score based on users' workload.
- Classes taken include: Algorithms, Computation Theory, Programming Languages, Human-Computer Interaction, Visual Analytics and Provenance.

Kings College London, London, UK

M.S. Neuroscience **Fall 2010 to Summer 2011**

- Awarded Departmental Grant
- Research Topic: Manual & Automated Methods of Dissection for Callosal Fibres

University College London, London, UK

M.S. Computer Graphics, Vision & Imaging Fall 2009 to Summer 2010

- Advisor: Prof Anthony Steed
- Research Topic: Using a Hybrid BCI in the CAVE to Select and Move Objects (*published in 5th International BCI Conference 2011*)

University College London, London, UK

M.S. Computer Science **Fall 2008 to Summer 2009**

- **Awarded Grade of Distinction**
- Advisor: Prof Anthony Steed
- Research Topic: A Novel Brain-Computer Interface Using a Multi-Touch Surface (*published in CHI 2010*)

University of Cambridge, UK

Computer Science **Fall 2007 to Spring 2008**

University of Lincoln, Lincoln, UK

B.S. (Hons), Animal Management & Welfare Fall 2003 to Spring 2006

- **Awarded First Class Honours**
- **Awarded Dean's Prize for Biological Sciences**
- **Awarded Vacation Scholarship**

SELECT CONFERENCE/ WORKSHOP PUBLICATIONS

[1]**Yuksel, B.F.**, Afergan, D., Peck, E.M., Griffin, G., Harrison, L., Chen, N.W., Chang, R., Jacob, R.J.K. BRAAHMS: A Novel Adaptive Musical Interface Based on Users' Cognitive State. *NIME 2015*. In Press.

[2] **Yuksel, B.F.**, Peck, E.M., Afergan, D., Shibata, T., Hincks, S., Kainerstorfer, J.M., Sassaroli, A., Fantini, S., Jacob, R.J.K. Functional near-infrared spectroscopy for adaptive human-computer interfaces. *SPIE BiOS* 2015.

[3] Afergan, D., Shibata, T., Hincks, S., Peck, E., **Yuksel, B.F.**, Chang, R., and Jacob, R.J.K. Brain-Based Target Expansion. *ACM UIST 2014*, In Press, 2014.

[4] Peck, E.M., **Yuksel, B.F.**, Ottley, A., Jacob, R.J.K, and Chang, R. Using fNIRS Brain Sensing to Evaluate Information Visualization Interfaces. *ACM CHI 2013*, 473–482, 2013.

[5] Peck, E.M., **Yuksel, B.F.**, Harrison, L., Ottley, A., and Chang, R. Towards a 3-Dimensional Model of Individual Cognitive Differences. *BELIV 2012*

[6] **Yuksel, B.F.**, Donnerer, M., Tompkin, J., Steed, A. A Novel Brain-Computer Interface Using a Multi-Touch Surface. *ACM CHI 2010*, 855-858, 2010.

CHAPTERS AND JOURNAL ARTICLES

[7] Peck, E.M., Afergan, D., **Yuksel, B.F.**, Lalooses, F., Jacob, R.J.K. Using fNIRS to Measure Mental Workload in the Real World. *Advances in Phy. Computing*, 2014.

[8] Mak, J.N., Arbel, Y., Minett, J.W., McCane, L.M., **Yuksel, B.F.**, Ryan, D., Thompson, D., Bianchi, L.,and Erdogmus, D. Optimizing the P300-based braincomputer interface: current status, limitations and future directions. *Journal of Neural Engineering*, 8(2).

OTHER

[9] Shibata, T., Peck, E.M., Hincks, S., **Yuksel, B.F.**, Jacob, R.J.K. Building Implicit Interfaces for Wearable Computers with Physiological Inputs: Zero Shutter Camera and Phylter. *Proc. UIST 2014* In Press. (Poster)

[10] **Yuksel, B.F.**, Donnerer, M., Tompkin, J. and Steed, A. (2011) Novel P300 BCI Interfaces to Directly Select Physical and virtual Objects. *Proc. of the 5th International BCI Conference*, 288-291.

[11] **Yuksel, B.F.** and Steed, A. (2011) Augmenting Gaze Control with a Brain-Computer Interface. *Proc. of the 5th International BCI Conference*, 296-299.

AWARDS AND ACHIEVEMENTS

- Member of Mensa, the high IQ society
- Awarded Grace Hopper Scholarship 2014
- Awarded Dean's Prize for Biological Sciences
- Awarded Grant for MS Neuroscience
- Awarded Summer Scholarship for research as undergraduate
- Awarded SPIE Travel Grant

INVITED TALKS

- Wellesley College, MA, April 2015
- Smith College, MA, October 2014
- Ipswich Middle School Technology Initiative, MA, July 2014
- Lincoln University, UK February 2010

SELECTED PRESS

Headband could help brain communicate with computers, Boston Globe, March '14
www.bostonglobe.com/business/2014/03/03/headband-could-help-communicate-with-computers/90HC7YkJtl2iRNoKw0fnEJ/story.html

The headband that measures boredom, BBC, May '14
www.bbc.com/news/world-us-canada-27578867

REFEREE SERVICE

- ACM Conference on Human Factors in Computing Systems (CHI) 2011, 2012, 2013, 2014, 2015
- ACM Transactions on Computer-Human Interaction (TOCHI) 2014
- ACM Transactions on Computer Supported Cooperative Work (CSCW) 2015
- Int. Journal of Human-Computer Studies (IJHCS) 2015
- Int. Journal of Computer Assisted Radiology and Surgery (IJCARS) 2015
- Physiological Computing Systems (PhyCS) 2014

TEACHING EXPERIENCE

Tufts University, Medford, MA

- *Co-Instructor of Graduate Seminar* ***"Affective Interfaces"*** Fall 2015.
  Co-creating and designing materials with Prof Rob Jacob.

- *Head Teaching Assistant For All:*
  - Programming Languages, Prof Norman Ramsey (functional programming, ML, Smalltalk, λ calculus)
    - Graded all homework assignments and class quizzes. Met regularly with Prof and 8 undergraduate TAs to discuss student progress and assignment feedback.
      This class is well-known in CS Tufts for being particularly challenging.
  - Object-Orientated Programming for GUIs, Prob Rob Jacob (Java)
    - Designed and graded all homework assignments and projects. Met regularly with students and undergraduate TA.
  - Data Structures (C++)
    - Graded all homework assignments and lab sessions. Designed and ran lab sessions. Met regularly with students and undergraduate TA.

GRADUATE COURSES

- Programming Languages
- Algorithms
- Computation Theory
- Human-Computer Interaction
- Physiological and Brain Interfaces
- Human-Computer Interaction for Music