I. Mission of Center: Virginia Tech’s Arlington Innovation Center: Health Research (AIC:HR) is a vanguard of integrated applied research that seeks to harness the power of informatics and systems science in order to meet the challenges of healthcare in the 21st century. AIC:HR is focused on the multidisciplinary application of advanced technology to address complex problems in neuroscience, human performance, therapeutics, and healthcare delivery.

II. Classification of Center and Organizational Structure:
Center director: Seong K. Mun, PhD, munsk@vt.edu
Website address: aic.ncr.vt.edu

Organizational Chart:

Seong K. Mun, PhD
Director

Jennifer LeFurgy
Project Manager

Kenneth H. Wong, PhD
Research Professor

Alpay Ozcan, DSc
Research Professor

Ben Lo, PhD
Adjunct Professor

III. Amendments to the Center Charter: n/a

IV. Stakeholder Committee: Seong K. Mun, Lay Nam Chang, Lara Khansa, Michel Pleimling, Angela Scarpa-Friedman, Richard Turber, and Yue Wang.
V. Major Contracts Received in 2013-2014:

   $1,498,000; U.S. Department of the Army
   1-May-2011 to 19-Sept-2014

   This project is a collaborative effort between Virginia Tech, Washington University in St. Louis, and Gachon University in South Korea. The project focuses on the role of sleep in neuroperformance, with particular emphasis on (1) PET/MRI studies to understand dopamine, acetylcholine, and serotonin sleep regulatory systems in the brain, particularly in the brainstem and thalamus; (2) EEG/fMRI studies focusing on the functional connectivity of networks between the thalamus and cortex that control the descent into sleep and are altered by sleep deprivation; and (3) Development of reference image databases for high field MRI studies of the brain. We have requested a one-year no-cost extension.

2. Kenneth H. Wong, “Rugged Medic SmartPhone”
   $1,357,023; U.S. Department of the Army
   30-Sep-2012 to 29-Sep-2015

   We are designing and building a rugged medic smartphone that will have capabilities above and beyond existing physiological monitoring systems, but in a much smaller package and with a familiar smartphone-based user interface. The result will be a compact handheld device that can enhance the capabilities of field medics to fulfill their critical missions, while also being able to allow for telementoring and the recording/transmission of important patient data to aid stations, hospitals, and other medical facilities.

   $346,140; U.S. Department of Veterans Affairs
   15-Jun-2012 to 31-Dec-2014

   As a continuation of a previous grant with Virginia Tech, the Department of Veterans Affairs (VA) is developing an electronic health record (EHR) Open Source ecosystem facilitated and guided by a central body, the EHR Custodial Alliance (CA). Dr. Mun provides technical leadership and coordination of the program activities of the CA.

VI. Major Proposals Submitted or Pending:

1. Proposal Title: Cancer Screening with Lung-Only Radiography in an LMIC Area
   Funding Agency: NIH/NCI
   Budget Total: $3,996,102
2. Proposal Title: A Complete e-Radiography for Screening Lung Cancer: Bone shadow removed & nodule enhanced  
   Funding Agency: NIH/NCI  
   Budget: $3,292,845

3. Proposal Title: MR Feature Space Derived Tumor Heterogeneity as a PCa Biomarker  
   Funding Agency: Department of Defense  
   Budget Total: $565,597

4. Proposal Title: Protoyping Interactive Feature Space Explorer [BULLET] (InfSEXplorer [BULLET]) for Clinical Radiology  
   Funding Agency: Virginia Innovation Partnership (VIP)  
   Budget Total: $75,730.00

5. Proposal Title: Functional and Anatomical Connectivity of Therapeutic Integrated Circuits (FACTIC)  
   Funding Agency: DARPA  
   Budget Total: $247,945

6. Proposal Title: MS Biomarker Properties of Magnetic Resonance Feature Space  
   Funding Agency: National Multiple Sclerosis Society  
   Budget Total: 480,184.00

7. Department of Defense CDMRP  
   Pre-Proposal: Magnetic Resonance Feature Space as an MS Biomarker

8. Department of Defense CDMRP  
   Pre-Proposal: Computer Aided Diagnostics and Staging for Prostate Cancer via MRI Feature Space as a Biomarker

9. Department of Defense CDMRP  
   Pre-Proposal: MR Feature Space Derived Tumor Heterogeneity as a PCa Biomarker

10. Patient-Centered Outcomes Research Institute  
    Pre-Proposal: Lung Cancer Screening with Low-dose CT versus with Computerized Lung Radiography
VII. Significant Accomplishments in 2013-2014:

A. Publications:


B. Outreach, Education, and Talks:

1. **Mun and Wong** Hosted workshop with Army on integrating medical efforts into NettWarrior devices.

2. **Mun and Wong** participated in C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) Network Modernization exercise at Ft. Dix, NJ. This was an Army evaluation of developing technology in a realistic field setting.


4. Affiliation with Faculty of Health Sciences, Virginia Tech, January, 2014 (**Özcan**)

5. Affiliation with Virginia Tech Center for Autism Research (VTCAR), March 2014 (**Özcan**)

6. **Mun** mentored two undergraduate students as part of the VT “Scieneering” program.
C. Awards:


VIII. Industrial Affilates: n/a

IX. Report of Financial Condition: see attached

X. Major Issues of the Center: n/a
### Financial Activity Report

**For Year Ending June 30, 2014**

**Center Name:** Arlington Innovation Center: Health Research  
**Date Prepared:** 9/22/14

**Oversight Responsibility:** Jennifer LeFurgy

#### Sponsored Project Activity:

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<th>Fund No.</th>
<th>Sponsor</th>
<th>Current Fiscal Year</th>
<th>Next Fiscal Year's Projections</th>
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<td>450220</td>
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<td>Various</td>
<td>55,811</td>
<td>56,445</td>
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**Subtotal:** 1,051,426 | 331,159.00 | 967,283.73 | 415,300.27 | 823,751.00 | 1,062,237.00 | 176,814.27

#### Sponsored Project Cost Sharing Activity:

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<th>Next Fiscal Year's Projections</th>
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<td></td>
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<td>Ending Balance</td>
</tr>
<tr>
<td></td>
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<td>648</td>
<td>12,669</td>
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</table>

**Subtotal:** 648 | 12,669 | 5,000.00 | 7,669.00

#### Virginia Tech Foundation Activity:

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**Subtotal:** 13,317 | 648 | 12,669 | 0 | 5,000.00 | 7,669.00

#### Overhead Funding Activity:

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<th>Next Fiscal Year's Projections</th>
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<tr>
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**Subtotal:** 89,822 | 101,938 | 100,000.00 | 20,000.00 | 80,000.00 |

#### Education & General Funding Activity:

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<th>Next Fiscal Year's Projections</th>
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<td></td>
<td></td>
<td>Beginning Balance</td>
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**Subtotal:** 34,757 | 63,960.29 | 100,000.00 | 24,000.00 | 76,000.00 |

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**Certified By:**  
Signature:  
Title: Project Manager