**Cluster 0**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Computerized Radiographic Analysis of Bone Structure | UNIVERSITY OF CHICAGO | R01 | 2005 | 0.11 |
| Annotating Functional Sites in 3D Biological Structures | STANFORD UNIVERSITY | R01 | 2013 | 0.083 |
| Multi-Parametric Spatial Assessment of Bone with HR-pQCT | UNIVERSITY OF COLORADO DENVER | R01 | 2020 | 0.075 |
| Annotating functional sites in 3D biological structures | STANFORD UNIVERSITY | R01 | 2008 | 0.067 |
| Improved algorithms for macromolecular structure determination by cryo-EM and NMR | PRINCETON UNIVERSITY | R01 | 2013 | 0.062 |

**Cluster 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Trainable Early Warning System for Epileptic Seizures | CHATTEN ASSOCIATES, INC. | R44 | 2006 | 0.0082 |
| Automated Object Contouring Methods & Software for Radiotherapy Planning | QUANTITATIVE RADIOLOGY SOLUTIONS, LLC | R42 | 2020 | 0.0041 |
| Reliable Seizure Prediction Using Physiological Signals and Machine Learning | MAYO CLINIC ROCHESTER | R01 | 2019 | 0.0034 |
| AUTOMATED MINIMAL RESIDUAL DISEASE QUANTIFICATION | UNIVERSITY OF WASHINGTON | R33 | 2003 | 0.0031 |
| Markov Chain Monte Carlo and Exact Logistic Regression | CYTEL, INC | R44 | 2004 | 0.0027 |

**Cluster 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Cerebellar connectivity and error-based learning in infants at risk for autism | WASHINGTON UNIVERSITY | F31 | 2020 | 0.25 |
| Investigating quantitative signatures of autism in toddlers | COLUMBIA UNIVERSITY TEACHERS COLLEGE | R01 | 2020 | 0.24 |
| Novel video-based approaches for detection of autism risk in the first year of life | UNIVERSITY OF CALIFORNIA AT DAVIS | R01 | 2020 | 0.22 |
| Phenotypic Characterization of Gene Disrupting Mutations in ASD | UNIVERSITY OF WASHINGTON | R01 | 2018 | 0.21 |
| Neural Correlates of Biological Motion Perception in Children with ASD | SEATTLE CHILDREN'S HOSPITAL | K01 | 2018 | 0.21 |

**Cluster 3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Machine Learning and Personalized Prognosis for Depression Treatment | UNIVERSITY OF TEXAS, AUSTIN | R21 | 2017 | 0.044 |
| Building Multistage Treatment Regimens for Depression after Acute Coronary SyndromeSyndrome | COLUMBIA UNIVERSITY HEALTH SCIENCES | R21 | 2017 | 0.038 |
| Using Causal Inference and Machine Learning Methods to Predict Cognitive Behavioral Treatment Response | BOSTON UNIVERSITY (CHARLES RIVER CAMPUS) | R21 | 2020 | 0.037 |
| Omics for TB: Response to Infection and Treatment | SEATTLE CHILDREN'S HOSPITAL | U19 | 2020 | 0.035 |
| Biosignatures of Treatment Remission in Major Depression | COLUMBIA UNIVERSITY HEALTH SCIENCES | U01 | 2015 | 0.033 |

**Cluster 4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Statistical Tests for Mapping Genetic Determinants of Complex Traits | EMORY UNIVERSITY | R01 | 2019 | 0.083 |
| Deep learning methods to predict the function of genetic variants in orofacial clefts | UNIVERSITY OF TEXAS HLTH SCI CTR HOUSTON | R03 | 2019 | 0.074 |
| Clinically Relevant Genome Variation Database | STANFORD UNIVERSITY | U01 | 2016 | 0.07 |
| Genetic Factors in Keratoconus | CEDARS-SINAI MEDICAL CENTER | R01 | 2019 | 0.068 |
| Modeling Dimensionality and Genetic Heterogeneity in Schizophrenia | UNIVERSITY OF UTAH | K01 | 2019 | 0.067 |

**Cluster 5**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Institutional Research Collaboration between the Liverpool School of Tropical Medicine and the Centers for Department of Health and Human Services Centers for Disease Control and Prevention | TMLIVERPOOL SCHOOL OF TROPICAL MEDICINE | U01 | 2019 | 0.25 |
| Institutional Collaboration between LSTM and CDC and Prevention on Malaria(U01) | TMLIVERPOOL SCHOOL OF TROPICAL MEDICINE | U01 | 2015 | 0.25 |
| Malaria Operations Research to Improve Malaria Control and Reduce Morbidity and Mortality in Western Kenya | TMLIVERPOOL SCHOOL OF TROPICAL MEDICINE | U01 | 2020 | 0.21 |
| Towards noninvasive diagnosis of malaria | CHILDREN'S HOSP OF PHILADELPHIA | R21 | 2020 | 0.21 |
| Environmental Modifications in sub-Saharan Africa: Changing Epidemiology, Transmission and Pathogenesis of Plasmodium falciparum and P. vivax Malaria | UNIVERSITY OF CALIFORNIA-IRVINE | U19 | 2019 | 0.21 |

**Cluster 6**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Transition from Risk Factors to Early HF: Prevalence, Pathogenesis, and Phenomics | WAKE FOREST UNIVERSITY HEALTH SCIENCES | R01 | 2018 | 0.14 |
| CorBand: A novel wearable wrist sensor for heart failure remote monitoring | RETHINK MEDICAL, INC. | R44 | 2017 | 0.14 |
| Innovative MRI-based Characterization of Cardiac Dyssynchrony | RUTGERS, THE STATE UNIV OF N.J. | R01 | 2018 | 0.13 |
| Advanced Heart Failure: Epidemiology and Outcomes | MAYO CLINIC ROCHESTER | R01 | 2020 | 0.12 |
| Early Diagnosis of Heart Failure: A Perioperative Data-Driven Approach | UNIVERSITY OF MICHIGAN AT ANN ARBOR | K01 | 2020 | 0.12 |

**Cluster 7**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Coding of auditory space in the avian brain | ALBERT EINSTEIN COLLEGE OF MEDICINE | R01 | 2014 | 0.14 |
| Top-down control of auditory processing in the cortico-collicular network | OREGON HEALTH & SCIENCE UNIVERSITY | R01 | 2019 | 0.11 |
| Top-down control of auditory processing in the cortico-collicular network (Administrative Supplement) | OREGON HEALTH & SCIENCE UNIVERSITY | R01 | 2017 | 0.11 |
| Decoding parametric attributes of auditory working memories from human brain activity | MASSACHUSETTS GENERAL HOSPITAL | R01 | 2020 | 0.1 |
| High Resolution Connectomics of Mammalian Neural Circuits | HARVARD UNIVERSITY | R01 | 2015 | 0.088 |

**Cluster 8**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Identifying Mechanisms of Dementia: Role for MRI in the Era of Molecular Imaging | MAYO CLINIC ROCHESTER | R01 | 2012 | 0.075 |
| Intrinsic Cortical Networks and Cognitive Dysfunction in Parkinson's Disease | UNIVERSITY OF COLORADO DENVER | K02 | 2017 | 0.074 |
| Intrinsic Cortical Networks and Cognitive Dysfunction in Parkinson???s Disease | UNIVERSITY OF COLORADO DENVER | K02 | 2014 | 0.074 |
| Characterizing Intrinsic Functional Cortical Networks in Parkinson Disease Dementia | UNIVERSITY OF COLORADO DENVER | R21 | 2017 | 0.073 |
| Mid-frontal delta/theta rhythms and cognitive control in PD | UNIVERSITY OF IOWA | R01 | 2020 | 0.067 |

**Cluster 9**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Combining chemical and computational tools for predictive models of microbiome communities | UNIVERSITY OF PENNSYLVANIA | R35 | 2020 | 0.032 |
| Fluomics: The Next Generation | ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI | U19 | 2020 | 0.028 |
| A platform for mining, visualization and design of microbial interaction networks | BOSTON UNIVERSITY (CHARLES RIVER CAMPUS) | R01 | 2019 | 0.027 |
| Predicting Resilience in the Human Microbiome | PALO ALTO VETERANS INSTIT FOR RESEARCH | R01 | 2017 | 0.026 |
| Dietary and Microbial Reprogramming of Intestinal Microbiota-Produced Metabolites | STANFORD UNIVERSITY | R01 | 2020 | 0.025 |

**Cluster 10**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Using Computational Approaches to Optimize Asthma Care Management | UNIVERSITY OF WASHINGTON | R01 | 2020 | 0.04 |
| Enhancing Quality in Pediatrics Sepsis with Shock Prediction and Early Electronic Decision Support (EQUIP with SPEED) | UNIVERSITY OF COLORADO DENVER | K08 | 2020 | 0.038 |
| Avoidable Acute Care Use among Patients with Lupus | BRIGHAM AND WOMEN'S HOSPITAL | K23 | 2020 | 0.032 |
| Identifying palliative care needs among hospitalized patients with chronic obstructive pulmonary disease | UNIVERSITY OF PENNSYLVANIA | K23 | 2020 | 0.032 |
| Adaptation and pilot implementation of a validated, electronic real time clinical decision support tool for care of Pneumonia patients in 12 Utah Urgent Care Centers | IHC HEALTH SERVICES, INC. | R18 | 2020 | 0.025 |

**Cluster 11**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Encoding genomic architecture in the encyclopedia: linking DNA elements, chromatin state, and gene expression in 3D | SLOAN-KETTERING INST CAN RESEARCH | U01 | 2020 | 0.08 |
| MODELING DNA METHYLATION'S ROLE IN GENE REGULATION | WASHINGTON UNIVERSITY | R01 | 2018 | 0.075 |
| A MACHINE LEARNING APPROACH FOR FINE-SCALE GENOME WIDE DNA METHYLATION ANALYSIS | WASHINGTON UNIVERSITY | R21 | 2013 | 0.072 |
| Genomic Reconstruction of Yeast Transcription Networks | UNIVERSITY OF CALIFORNIA SAN FRANCISCO | R01 | 2006 | 0.069 |
| CHARTING THE EPIGENOMIC LANDSCAPE OF HUMAN TRANSPOSABLE ELEMENTS | WASHINGTON UNIVERSITY | R01 | 2015 | 0.067 |

**Cluster 12**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Digital Monitoring of Agitation for Short-Term Suicide Risk Prediction | MASSACHUSETTS GENERAL HOSPITAL | K23 | 2020 | 0.086 |
| MAPS: Mobile Assessment for the Prediction of Suicide | UNIVERSITY OF OREGON | U01 | 2020 | 0.077 |
| Risk Profiles for Suicidal Behavior in the General Population | BOSTON UNIVERSITY MEDICAL CAMPUS | R01 | 2019 | 0.074 |
| Multimodal Assessment of Near-term Risk Processes for Suicide Ideation and Behavior | UNIVERSITY OF PITTSBURGH AT PITTSBURGH | R01 | 2020 | 0.072 |
| Using multimodal imaging and the RDoC framework to predict risk factors for suicide attempt | YALE UNIVERSITY | R03 | 2020 | 0.071 |

**Cluster 13**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Big Data analytics of HIV treatment gaps in South Carolina: Identification and prediction | UNIVERSITY OF SOUTH CAROLINA AT COLUMBIA | R01 | 2020 | 0.29 |
| Addressing Major HIV Prevention and Health Outcomes Questions in an Era of Universal ART: Mentoring in a Community-Randomized Trial | BRIGHAM AND WOMEN'S HOSPITAL | K24 | 2020 | 0.27 |
| Defining the impact of injection drug use on antiretroviral therapy and HIV treatment outcomes: an (epi)genomic approach | YALE UNIVERSITY | R01 | 2020 | 0.27 |
| NeuroAIDS in India | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R01 | 2011 | 0.26 |
| Big Data Analysis of HIV Risk and Epidemiology in Sub-Saharan Africa | STANFORD UNIVERSITY | R01 | 2020 | 0.26 |

**Cluster 14**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Speech Prosody and Articulatory Dynamics in Spoken Language | UNIVERSITY OF SOUTHERN CALIFORNIA | R01 | 2016 | 0.29 |
| Wearable silent speech technology to enhance impaired oral communication | UNIVERSITY OF TEXAS, AUSTIN | R01 | 2020 | 0.26 |
| Perception of dysarthric speech: An objective model of dysarthric speech evaluation with actionable outcomes | ARIZONA STATE UNIVERSITY-TEMPE CAMPUS | R01 | 2020 | 0.25 |
| Multimodal Speech Translation for Assistive Communication | NORTHEASTERN UNIVERSITY | R21 | 2015 | 0.24 |
| Functional Architecture of Speech Motor Cortex | UNIVERSITY OF CALIFORNIA, SAN FRANCISCO | U01 | 2018 | 0.24 |

**Cluster 15**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| National Center for Biomedical Ontology | STANFORD UNIVERSITY | U54 | 2014 | 0.076 |
| Protege: A Knowledge-Engineering Environment for Advancing Biomedical Sciences | STANFORD UNIVERSITY | R01 | 2020 | 0.069 |
| Knowledge-Based Biomedical Data Science | UNIVERSITY OF COLORADO DENVER | R01 | 2020 | 0.061 |
| Protege: An Ontology-Development Platform for Biomedical Scientists | STANFORD UNIVERSITY | R01 | 2016 | 0.061 |
| Automated Knowledge Extraction for Biomedical Literature | BRANDEIS UNIVERSITY | R01 | 2006 | 0.061 |

**Cluster 16**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Digital Mammography: Advanced Computer-Aided Breast Can\* | UNIVERSITY OF MICHIGAN | R01 | 2007 | 0.28 |
| Improving Breast Cancer Detection and Diagnosis with CAD | UNIVERSITY OF PITTSBURGH AT PITTSBURGH | R01 | 2011 | 0.27 |
| Digital Tomosynthesis Mammography: Computer-Aided Analysis of Masses | UNIVERSITY OF MICHIGAN AT ANN ARBOR | R33 | 2009 | 0.26 |
| COMPUTER AIDED DIAGNOSIS IN CHEST RADIOGRAPHY | UNIVERSITY OF CHICAGO | R01 | 2004 | 0.23 |
| Toward Diagnostics and Therapies of Molecular Subcategories of CAD | ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI | R01 | 2018 | 0.22 |

**Cluster 17**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| The Electronic Medical Records and Genomics (eMERGE) Network, Phase III | KAISER FOUNDATION RESEARCH INSTITUTE | U01 | 2019 | 0.17 |
| EHR-based Genomic Discovery and Implementation | MAYO CLINIC ROCHESTER | U01 | 2019 | 0.16 |
| Patient-Centered Comparative Effectiveness of Colorectal Cancer Surveillance in IBD | BAYLOR COLLEGE OF MEDICINE | K08 | 2019 | 0.14 |
| Optimizing long-term post-polypectomy surveillance for colorectal cancer prevention using a prediction rule developed from a large, community-based cohort | KAISER FOUNDATION RESEARCH INSTITUTE | K07 | 2020 | 0.14 |
| Comprehensive Colorectal Cancer Risk Prediction to Inform Personalized Screening | FRED HUTCHINSON CANCER RESEARCH CENTER | R01 | 2020 | 0.14 |

**Cluster 18**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Advancing Physical Activity Measurement Using Pattern Recognition Techniques | UNIVERSITY OF MASSACHUSETTS AMHERST | RC1 | 2010 | 0.075 |
| Novel Models to Predict Energy Expenditure and Physical Activity in Preschoolers | BAYLOR COLLEGE OF MEDICINE | R01 | 2013 | 0.064 |
| Novel Analytic Techniques to Assess Physical Activity | UNIVERSITY OF MASSACHUSETTS AMHERST | R01 | 2010 | 0.063 |
| Machine Learning Algorithms to Measure Physical Activity in Children with Cerebral Palsy | DREXEL UNIVERSITY | R21 | 2017 | 0.062 |
| An Intelligent Physical Activity Monitor | CREARE, INC. | R43 | 2006 | 0.06 |

**Cluster 19**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Self Correcting Nanoflow LC-MS for Clinical Proteomics | UNIVERSITY OF WASHINGTON | R01 | 2016 | 0.17 |
| A New Model of Peptide Fragmentation for Improved Protein Identification and Targ | UNIVERSITY OF COLORADO | R01 | 2015 | 0.16 |
| Analysis of LC-MS data to identify peptide and glycan biomarkers for hepatocellul | GEORGETOWN UNIVERSITY | R01 | 2014 | 0.15 |
| Improving Diagnosis of Multiple Sclerosis Through the Integration of Novel Imaging and Laboratory Biomarkers | UNIVERSITY OF VERMONT & ST AGRIC COLLEGE | K02 | 2020 | 0.13 |
| Optimization and joint modeling for peptide detection by tandem mass spectrometry | UNIVERSITY OF WASHINGTON | R01 | 2020 | 0.13 |

**Cluster 20**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Development and Evaluation of a Learning Electronic Medical Record System | UNIVERSITY OF PITTSBURGH AT PITTSBURGH | R01 | 2018 | 0.14 |
| Vanderbilt Genome-Electronic Records Project | VANDERBILT UNIVERSITY | U01 | 2011 | 0.13 |
| Informatics Tools for Pharmacogenomic Discovery using Practice-based Data | VANDERBILT UNIVERSITY MEDICAL CENTER | R01 | 2017 | 0.11 |
| Evidence-based Diagnostic Tools for Translational and Clinical Research (eTfor2) | VANDERBILT UNIVERSITY | R01 | 2012 | 0.1 |
| An in-silico method for epidemiological studies using Electronic Medical Records | VANDERBILT UNIVERSITY | R01 | 2012 | 0.096 |

**Cluster 21**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Statistical Learning in Language Acquisition | UNIVERSITY OF WISCONSIN-MADISON | R37 | 2019 | 0.19 |
| Statistical approaches to linguistic pattern learning | GEORGETOWN UNIVERSITY | R01 | 2019 | 0.17 |
| "Mechanisms of Early Bilingual Language Acquisition" | UNIVERSITY OF CALIFORNIA AT DAVIS | R03 | 2017 | 0.15 |
| Distributional Learning in Children with Language Impairment | UNIVERSITY OF IOWA | F31 | 2017 | 0.15 |
| Infant statistical learning: Resilience, longevity, and specificity | UNIVERSITY OF TENNESSEE KNOXVILLE | R01 | 2019 | 0.14 |

**Cluster 22**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| A Multisite Neurobehavioral Assessment of Fetal Alcohol Spectrum Disorders | SAN DIEGO STATE UNIVERSITY | U01 | 2020 | 0.22 |
| Alcohol Use: Nonlinearities in Intraindividual Variables | UNIVERSITY OF SOUTHERN CALIFORNIA | F31 | 2005 | 0.2 |
| Ambulatory assessment of alcohol use, mood dysregulation, and alcohol craving | UNIVERSITY OF MISSOURI-COLUMBIA | R21 | 2014 | 0.19 |
| Connectome-based prediction and neurodevelopmental trajectories of alcohol phenotypes across development | YALE UNIVERSITY | R01 | 2020 | 0.19 |
| How Cannabis Use Affects Alcohol Treatment Outcomes | PUBLIC HEALTH INSTITUTE | R21 | 2016 | 0.18 |

**Cluster 23**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| ABCD-USA Consortium: Research Project | UNIVERSITY OF CALIFORNIA, SAN DIEGO | U01 | 2019 | 0.024 |
| Maternal psychological stress during pregnancy as a key mechanism for the intergenerational transmission of childhood traumatic stress | OREGON HEALTH & SCIENCE UNIVERSITY | F30 | 2020 | 0.021 |
| Early Life Adversity, Biological Embedding, and Risk for Developmental Precursors of Mental Disorders | WASHINGTON UNIVERSITY | R01 | 2020 | 0.021 |
| Neurobehavioral mechanisms of parent-child extinction learning in adolescent PTSD | UNIVERSITY OF WISCONSIN-MADISON | R01 | 2020 | 0.02 |
| Characterizing Trauma Outcomes: From Pre-trauma Risk to Post-trauma Sequelae | BOSTON UNIVERSITY MEDICAL CAMPUS | R01 | 2020 | 0.017 |

**Cluster 24**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Programmable RNA-targeting CRISPR-Cas tools to study RNA biology | UNIVERSITY OF ROCHESTER | R35 | 2020 | 0.23 |
| Defining the messenger RNP code in the brain | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R01 | 2016 | 0.22 |
| An integrative genomic strategy to infer global RNA regulatory networks | COLUMBIA UNIVERSITY HEALTH SCIENCES | R00 | 2015 | 0.18 |
| Computational genome-wide RNA profiling using next-generation sequencing | UNIVERSITY OF PENNSYLVANIA | R01 | 2016 | 0.18 |
| New methods for computational modeling of RNA structures | UNIVERSITY OF MISSOURI-COLUMBIA | R35 | 2020 | 0.18 |

**Cluster 25**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Spinal Epidural Electrode Array To Facilitate Standing and Stepping After SCI | UNIVERSITY OF CALIFORNIA LOS ANGELES | U01 | 2018 | 0.081 |
| A Theranostic Tool to Assess and Enable Spared Spinal Motor Function After SCI | NEUROENABLING TECHNOLOGIES, INC. | R43 | 2014 | 0.075 |
| CRCNS: Sensory-Motor Integration in Mammalian Brian: experiment, analysis, modeling | YALE UNIVERSITY | R01 | 2019 | 0.073 |
| Restoring arm and hand motor function with non-invasive spinal stimulation. | NEUROENABLING TECHNOLOGIES, INC. | R43 | 2013 | 0.071 |
| Spinal Epidural Electrode Array to Facilitate Standing and Stepping After SCI | UNIVERSITY OF CALIFORNIA LOS ANGELES | R01 | 2012 | 0.07 |

**Cluster 26**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Olfactory and facial markers of developmental risk for psychosis in 22q11 deletion syndrome | UNIVERSITY OF PENNSYLVANIA | R01 | 2020 | 0.25 |
| Ultra-high field GluCEST MRI and MRS in youth at risk for psychosis | UNIVERSITY OF PENNSYLVANIA | R01 | 2020 | 0.24 |
| 2/5 CAPER Computerized assessment of psychosis risk | NORTHWESTERN UNIVERSITY | R01 | 2020 | 0.22 |
| 4/5 CAPER: Computerized assessment of psychosis risk | UNIVERSITY OF GEORGIA | R01 | 2020 | 0.22 |
| CAPER: Computerized Assessment of Psychosis Risk | TEMPLE UNIV OF THE COMMONWEALTH | R01 | 2020 | 0.22 |

**Cluster 27**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Perceptual bases of visual concepts | UNIVERSITY OF IOWA | R01 | 2010 | 0.14 |
| Representation of information across the human visual cortex | UNIVERSITY OF CALIFORNIA BERKELEY | R01 | 2018 | 0.14 |
| The role of area V4 in the perception and recognition of visual objects | UNIVERSITY OF WASHINGTON | R01 | 2018 | 0.12 |
| Post-natal development of high-level visual representation in primates | MASSACHUSETTS INSTITUTE OF TECHNOLOGY | R21 | 2018 | 0.12 |
| Neural and Behavioral Interactions Between Attention, Perception, and Learning | PRINCETON UNIVERSITY | R01 | 2015 | 0.12 |

**Cluster 28**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Sleep apnea after stroke: Implications for screening and treatment | UNIVERSITY OF MICHIGAN AT ANN ARBOR | R01 | 2019 | 0.25 |
| Biomarker panel to differentiate stroke from stroke mimic | PREDICTION SCIENCES, LLC | R43 | 2008 | 0.25 |
| Fast and Easy Assessment of Stroke | ALVA HEALTH, INC. | R43 | 2019 | 0.23 |
| Prediction Model for Incident Stroke for Early Screening of an Individual at Risk of Stroke | IHEALTHSCREEN, INC. | R43 | 2018 | 0.23 |
| MEDIC ONE STROKE SCALE | UNIVERSITY OF WASHINGTON | K23 | 2003 | 0.23 |

**Cluster 29**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| An Integrative Approach to Drug Repositioning Using Decision Tree Based Machine Learning | WEILL MEDICAL COLL OF CORNELL UNIV | F31 | 2020 | 0.1 |
| A systems analysis of drug tolerance in Mycobacterium tuberculosis | INSTITUTE FOR SYSTEMS BIOLOGY | R01 | 2020 | 0.088 |
| Novel deep learning strategy to better predict pharmacological properties of candidate drugs and focus discovery efforts | COLLABORATIVE DRUG DISCOVERY, INC. | R44 | 2020 | 0.083 |
| MegaTrans – human transporter machine learning models | COLLABORATIONS PHARMACEUTICALS, INC. | R41 | 2019 | 0.082 |
| An integrative multi-phenotype pipeline for drug evaluation, pharmacogenomics, and attribute prediction | PHENVOGEN, LLC | R41 | 2017 | 0.079 |

**Cluster 30**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Intracranial EEG for Neuronal Oscillatory Contingency during Cognitive Tasks | UNIVERSITY OF PENNSYLVANIA | R21 | 2010 | 0.055 |
| Neural mechanisms for reducing interference during episodic memory formation | UNIVERSITY OF OREGON | R01 | 2018 | 0.053 |
| CRCNS: Computational and neural mechanisms of memory-guided decisions | PRINCETON UNIVERSITY | R01 | 2018 | 0.053 |
| Mechanisms of neural circuit dynamics in working memory | PRINCETON UNIVERSITY | U01 | 2016 | 0.049 |
| The effects of film music on neural activity in higher-order brain areas and comprehension for the film narrative | PRINCETON UNIVERSITY | F99 | 2020 | 0.045 |

**Cluster 31**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| C-PAC: A configurable, compute-optimized, cloud-enabled neuroimaging analysis software for reproducible translational and comparative | CHILD MIND INSTITUTE, INC. | R24 | 2020 | 0.059 |
| EEGLAB: Software for Analysis of Human Brain Dynamics | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R01 | 2020 | 0.056 |
| Large-Scale Semiparametric Graphical Models with Applications to Neuroscience | PRINCETON UNIVERSITY | R01 | 2017 | 0.054 |
| BRAIN INITIATIVE RESOURCE: DEVELOPMENT OF A HUMAN NEUROELECTROMAGNETIC DATA ARCHIVE AND TOOLS RESOURCE (NEMAR) | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R24 | 2020 | 0.054 |
| Integrative Bioinformatics Approaches to Human Brain Genomics and Connectomics | UNIVERSITY OF PENNSYLVANIA | R01 | 2019 | 0.051 |

**Cluster 32**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Very large datasets and new models to predict and design protein interactions | MASSACHUSETTS INSTITUTE OF TECHNOLOGY | R01 | 2014 | 0.16 |
| Protein recognition for modular domains | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R01 | 2012 | 0.15 |
| Alignment-independent Classification of Proteins | UNIVERSITY OF PITTSBURGH AT PITTSBURGH | R01 | 2007 | 0.15 |
| Advanced approaches to protein structure prediction | UNIVERSITY OF MICHIGAN AT ANN ARBOR | R35 | 2020 | 0.13 |
| Integrated Prediction of Protein Struture at 1D, 2D and 3D Levels | UNIVERSITY OF MISSOURI-COLUMBIA | R01 | 2013 | 0.13 |

**Cluster 33**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Encoding and Processing Patient Allergy Information in EHRs | BRIGHAM AND WOMEN'S HOSPITAL | R01 | 2016 | 0.048 |
| Open Health Natural Language Processing Collaboratory | MAYO CLINIC ROCHESTER | U01 | 2020 | 0.047 |
| POET: Consolidated, Comprehensive Clinical Text Preprocessing | UNIVERSITY OF UTAH | R21 | 2009 | 0.046 |
| NLP to Identify and Rank Clinically Relevant Information for EHRs in the Emergency Department | UNIVERSITY OF COLORADO DENVER | R21 | 2017 | 0.043 |
| Challenges in Natural Language Processing for Clinical Narratives | STATE UNIVERSITY OF NEW YORK AT ALBANY | R13 | 2015 | 0.042 |

**Cluster 34**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Multi-modal and Extreme PET/MRI Reconstruction Methods | UNIVERSITY OF CALIFORNIA, SAN FRANCISCO | F32 | 2020 | 0.092 |
| Machine learning for fast motion compensated quantitative abdominal DCE-MRI | BOSTON CHILDREN'S HOSPITAL | R21 | 2020 | 0.077 |
| Rapid Robust Pediatric MRI | STANFORD UNIVERSITY | R01 | 2020 | 0.073 |
| Enabling the Next Generation of High Performance Pediatric Whole Body MR Imaging | STANFORD UNIVERSITY | U01 | 2020 | 0.071 |
| Bayesian Parallel Imaging For Arbitrarily Sampled MR Data Using Edge-Preserving S | WEILL MEDICAL COLL OF CORNELL UNIV | R21 | 2009 | 0.07 |

**Cluster 35**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Computational Prediction and Functional Validation of Novel Risk Loci of Alzheimer's Disease | EMORY UNIVERSITY | R56 | 2018 | 0.25 |
| Assessing ASL CBF as a biomarker for early Alzheimer's disease detection and disease progression | UNIVERSITY OF MARYLAND BALTIMORE | R01 | 2020 | 0.24 |
| Computational Prediction and Functional Validation of Novel Epigenetic Risk Loci in Alzheimer's Disease | EMORY UNIVERSITY | R56 | 2018 | 0.23 |
| Disparities in the Diagnosis of Alzheimer's Disease Among African American and European American Veterans | SEATTLE INST FOR BIOMEDICAL/CLINICAL RES | R56 | 2018 | 0.22 |
| Genetic Predictors, Transcriptomic Biomarkers, & Neurobiological Signatures of Resilience to Alzheimer's Disease | UPSTATE MEDICAL UNIVERSITY | R01 | 2020 | 0.22 |

**Cluster 36**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Intraocular Robotic Interventional Surgical System for Cataract Surgery Project | UNIVERSITY OF CALIFORNIA LOS ANGELES | R21 | 2015 | 0.13 |
| Impact of Crouch Gait and Surgical Treatment on Knee Mechanics and Function | UNIVERSITY OF WISCONSIN-MADISON | R21 | 2016 | 0.13 |
| Learning-Based Approach for Personalized Craniomaxillofacial Surgical Planning | METHODIST HOSPITAL RESEARCH INSTITUTE | R01 | 2020 | 0.13 |
| Real-time non-intrusive workload monitoring-Integration of human factors in surgery training and assessment | PURDUE UNIVERSITY | R21 | 2020 | 0.13 |
| Quantifying the Metrics of Surgical Mastery: An Exploration in Data Science | STANFORD UNIVERSITY | R01 | 2020 | 0.12 |

**Cluster 37**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Quantitative Parenchyma Descriptor as an Imaging Biomarker of Breast Cancer Risk | UNIVERSITY OF MICHIGAN AT ANN ARBOR | U01 | 2019 | 0.22 |
| Informatics Techniques to Optimize Mammography for Aging Populations | UNIVERSITY OF WISCONSIN-MADISON | R01 | 2016 | 0.21 |
| A Noninvasive, Precision Medicine Approach to Improve Breast Cancer Screening Using Cell-free RNA from Saliva. | PRIME GENOMICS, INC. | R43 | 2019 | 0.21 |
| Using Markov Decision Processes to Optimize Breast Biopsy Decision Making | UNIVERSITY OF WISCONSIN-MADISON | R21 | 2009 | 0.2 |
| Breast Cancer Risk Stratification with Resonant Electrical Impedance Spectroscopy | UNIVERSITY OF PITTSBURGH AT PITTSBURGH | R33 | 2010 | 0.2 |

**Cluster 38**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Central glutamate signaling in postoperative pain regulation - Renewal | NEW YORK UNIVERSITY SCHOOL OF MEDICINE | R01 | 2020 | 0.35 |
| A Multimodal Approach for Monitoring Prolonged Acute Pain in Neonates | UNIVERSITY OF SOUTH FLORIDA | R21 | 2020 | 0.34 |
| Measuring Infant Pain Objectively using Sensor Fusion and Machine Learning Algorithms | AUTONOMOUS HEALTHCARE, INC. | R41 | 2018 | 0.34 |
| Neuroimaging-based biomarkers for two components of pain | COLUMBIA UNIV NEW YORK MORNINGSIDE | RC1 | 2010 | 0.33 |
| Autonomous Pain Recognition in Non-Verbal and Critically Ill Patients | UNIVERSITY OF FLORIDA | R21 | 2020 | 0.33 |

**Cluster 39**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Predicting brain tumor progression via multiparametric image analysis and modelin | UNIVERSITY OF PENNSYLVANIA | R01 | 2018 | 0.14 |
| MDCT Quantification of hepatic tumor viability for assessment of cancer therapy | IQ MEDICAL IMAGING, LLC | R42 | 2019 | 0.11 |
| Statistical atlases of brain tumor MRI:do imaging phenotypes predict progression? | UNIVERSITY OF PENNSYLVANIA | R01 | 2012 | 0.11 |
| Automatic Volumetric Treatment Response Assessment and Determination of Regional Genetic Characteristics in Glioblastoma | HARVARD MEDICAL SCHOOL | F30 | 2020 | 0.11 |
| Quantitative Multimodal Image Guidance for Improved Liver Cancer Treatment | YALE UNIVERSITY | R01 | 2020 | 0.11 |

**Cluster 40**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Predicting Diabetic Retinopathy from Risk Factor Data and Digital Retinal Images | CHARLES R. DREW UNIVERSITY OF MED & SCI | R01 | 2019 | 0.15 |
| RetiVue DR, a point and shoot, non-mydriatic, widefield retinal camera for diabetic eye screening | RETIVUE | R44 | 2018 | 0.11 |
| Leveraging modern analytic approaches to improve diabetes outcomes | EMORY UNIVERSITY | K01 | 2020 | 0.11 |
| Mobile App for Diabetic Retinopathy Screening using Cellphone Retinal Camera | EYENUK, INC. | R43 | 2014 | 0.1 |
| Diabetic Retinopathy: genetics and neurodegeneration | BAYLOR COLLEGE OF MEDICINE | K23 | 2020 | 0.099 |

**Cluster 41**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Academy of Aphasia Research and Training Symposium | BOSTON UNIVERSITY (CHARLES RIVER CAMPUS) | R13 | 2020 | 0.28 |
| Center for the Study of Aphasia Recovery (C-STAR) | UNIVERSITY OF SOUTH CAROLINA AT COLUMBIA | P50 | 2020 | 0.27 |
| Neural Correlates of Recovery from Aphasia After Stroke | VANDERBILT UNIVERSITY MEDICAL CENTER | R01 | 2020 | 0.26 |
| Transcranial Magnetic Stimulation for Aphasia: Efficacy and Neural Basis | UNIVERSITY OF PENNSYLVANIA | R01 | 2020 | 0.23 |
| Neural correlates of recovery from aphasia after acute stroke | VANDERBILT UNIVERSITY MEDICAL CENTER | R01 | 2018 | 0.21 |

**Cluster 42**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Gene-Gene Interactions and Their Functional Roles in Prostate Cancer Aggressiveness | LSU HEALTH SCIENCES CENTER | R21 | 2017 | 0.071 |
| Visualization and Analysis of the TCGA Data Using the UCSC Cancer Genomics Browse | UNIVERSITY OF CALIFORNIA SANTA CRUZ | R21 | 2009 | 0.071 |
| Genetic & epigenetic analysis of angiogenesis genes in recurrent prostate cancer | H. LEE MOFFITT CANCER CTR & RES INST | R01 | 2012 | 0.07 |
| UCSC-Buck Inst. Genome Data Analysis Center for TCGA Research Network (GDAC) | UNIVERSITY OF CALIFORNIA SANTA CRUZ | U24 | 2016 | 0.07 |
| A Federated Galaxy for user-friendly large-scale cancer genomics research | OREGON HEALTH & SCIENCE UNIVERSITY | U24 | 2020 | 0.06 |

**Cluster 43**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| CTSA Administrative Supplement for Informatics Core: A novel AI/ML system to predict respiratory failure and ARDS in Covid-19 patients | ALBERT EINSTEIN COLLEGE OF MEDICINE | UL1 | 2020 | 0.19 |
| Innate responses following infection with enteric microbes | UNIVERSITY OF CALIFORNIA, SAN DIEGO | R01 | 2020 | 0.18 |
| DIGITAL HEALTH SOLUTIONS FOR COVID-19: COVID-19 ONGOING MONITORING (COMMUNITY) | EVIDATION HEALTH, INC. | N01 | 2020 | 0.17 |
| Factors associated with hospitalization, ICU use and death among vulnerable populations diagnosed with COVID-19 | UNIVERSITY OF ROCHESTER | RF1 | 2020 | 0.17 |
| BDD CIS: Big Data Driven Clinical Informatics & Surveillance - A Multimodal Database Focused Clinical, Community, & Multi-Omics Surveillance Plan for COVID19 | UNIVERSITY OF SOUTH CAROLINA AT COLUMBIA | R01 | 2020 | 0.17 |

**Cluster 44**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Web-based App to Alleviate Loneliness and Isolation in Older Adults at Home | VIGOROUS MIND, INC. | R43 | 2018 | 0.15 |
| Investigating Sedentary Time In Aging: New Directions Using Technology (iSTAND) | KAISER FOUNDATION HEALTH PLAN OF WASHINGTON | K23 | 2017 | 0.14 |
| Cognitive and social aspects of decision-making | UNIVERSITY OF COLORADO AT COLORADO SPGS | R15 | 2002 | 0.14 |
| Integrated Web-Based Customer Engagement, Physical Exercise, and Coaching Platform for Older Adults | VIGOROUS MIND, INC. | R43 | 2017 | 0.13 |
| Chronic Conditions and Mutuality of Care in Late Life Marriage:A Multi-method App | YALE UNIVERSITY | K01 | 2017 | 0.13 |

**Cluster 45**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Dissecting the mechanism of cell migration at the systems level | CARNEGIE-MELLON UNIVERSITY | R35 | 2020 | 0.11 |
| High-throughput technology for automated single cell expression analysis for C. e | STANFORD UNIVERSITY | RC1 | 2010 | 0.1 |
| Neuron and Glial Cellular Signatures from Normal and Diseased iPS Cells | UNIVERSITY OF CALIFORNIA-IRVINE | U54 | 2020 | 0.094 |
| Neuron and Glial Cellular Signatures from Normal and Diseased iPS Cells-Supplement | UNIVERSITY OF CALIFORNIA-IRVINE | U54 | 2018 | 0.094 |
| Systems Analysis of cell type differentiation in Xenopus development | HARVARD MEDICAL SCHOOL | R01 | 2020 | 0.094 |

**Cluster 46**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Lung cancer in East Africa and the relationship to HIV-1 infection: epidemiology, molecular characterization and imaging | CASE WESTERN RESERVE UNIVERSITY | U54 | 2020 | 0.23 |
| Histopathology correlated quantitative analysis of lung nodules with LDCT for early detection of lung cancer | UNIVERSITY OF MICHIGAN AT ANN ARBOR | U01 | 2020 | 0.23 |
| EARLY DETECTION OF LUNG CANCER USING METABOLOMIC LIPID PROFILING | RUSH UNIVERSITY MEDICAL CENTER | R21 | 2014 | 0.22 |
| High Density Association Analysis of Lung Cancer | UNIVERSITY OF TX MD ANDERSON CAN CTR | R01 | 2010 | 0.22 |
| Lung Screening: Efficacy versus Effectiveness | BROWN UNIVERSITY | R01 | 2020 | 0.22 |

**Cluster 47**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Delineating proactive social behaviors in dynamic and multidimensional social space | ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI | R21 | 2020 | 0.082 |
| Moving beyond description: Statistical and casual inference for social media data | UNIVERSITY OF ROCHESTER | R01 | 2015 | 0.08 |
| Supplementing Survey-Based Analyses of Group Vaccination Narratives and Behaviors Using Social Media | GEORGE WASHINGTON UNIVERSITY | R01 | 2019 | 0.079 |
| BIGDATA: Small DA Social Behavior Driven Modeling and Optimization of Information | GEORGIA INSTITUTE OF TECHNOLOGY | R01 | 2015 | 0.075 |
| The Molecular Underpinnings of Complex Social Behavior | ROCKEFELLER UNIVERSITY | R35 | 2020 | 0.073 |

**Cluster 48**

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| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Automated detection and prediction of atrial fibrillation during sepsis | BOSTON UNIVERSITY MEDICAL CAMPUS | R01 | 2020 | 0.34 |
| The Dynamics of Human Atrial Fibrillation | STANFORD UNIVERSITY | R01 | 2020 | 0.34 |
| Deep Neural Networks To Treat Atrial Fibrillation | STANFORD UNIVERSITY | K23 | 2020 | 0.31 |
| Ancillary Comparative Effectiveness of Atrial Fibrillation Ablation Surgery | CLEVELAND CLINIC LERNER COM-CWRU | R01 | 2014 | 0.31 |
| Machine Learning in Atrial Fibrillation | STANFORD UNIVERSITY | R01 | 2020 | 0.3 |

**Cluster 49**

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| --- | --- | --- | --- | --- |
| Title | Awardee | Award Activity | Year | Sample Silhouette Score |
| Locating and Reading Informational Signs | UNIVERSITY OF CALIFORNIA LOS ANGELES | R01 | 2004 | 0.18 |
| Providing Access to Appliance Displays for Visually Impaired Users | SMITH-KETTLEWELL EYE RESEARCH INSTITUTE | R01 | 2015 | 0.17 |
| A Non-Document Text and Display Reader for Visually Impaired Persons | SMITH-KETTLEWELL EYE RESEARCH INSTITUTE | R01 | 2010 | 0.15 |
| Leveraging Maps and Computer Vision to Support Indoor Navigation for Blind Travelers | SMITH-KETTLEWELL EYE RESEARCH INSTITUTE | R01 | 2020 | 0.14 |
| Wayfinding for the blind & visually impaired using passive environmental labels | SMITH-KETTLEWELL EYE RESEARCH INSTITUTE | R21 | 2007 | 0.14 |