**Budget Justification   
(INSERT TITLE)   
(INDERT BUDGET PERIOD)   
MSU PI: (INSERT PI NAME)**

1. **SENIOR PERSONNEL:**

**Principal Investigator (INSERT PI NAME)**: Professor (INSERT PI NAME), at the MSU, will be the Principal Investigator (PI) of this project and will provide overall direction and oversight of the project including drafting and dissemination of results. He/She will commit 0.4 (CHOOSE APPLICABLE calendar/academic/summer) month per year. In addition to overall project responsibility, he/she will supervise one (INSERT DEPT) Graduate Student Researcher (GSR) working on the project.

**Co-Principal Investigator (INSERT CO-PI NAME)**: Professor (INSERT CO-PI NAME), at Morgan State University, will be the Co-Principal Investigator (Co-PI) of this project. She will commit 0.4 (CHOOSE APPLICABLE calendar/academic/summer) month per year. In additional to overseeing his responsibility on the project, he/she will assist the PI as outlined in the research proposal and co-supervise the GSR.

1. **OTHER PERSONNEL:**

**Graduate Student Researcher (TBD)**: The GSR will assist the PI/Co-PI, as directed, in conducting research and contribute to the drafting and dissemination of results. The GSR will commit 4.455 academic months and 1.485 summer months over the project period.

*Salaries are based on 1/1/17 actual salaries and are projected to include a 3% annual cost-of-living adjustment (and merit, if applicable) effective each year.*

1. **FRINGE BENEFITS:**

Morgan State University Composite Fringe Benefit Rates (CFBR)   
*Updated* *rates may be found on the Office of Sponsored Programs website:*    
Regular faculty during the academic year is 42%, and during summer months is 9%.   
Postdoc and staff employee (fulltime) is 9% plus $1000/month health insurance.   
*Graduate and undergraduate student benefits are calculated at 9%.*  
*Example:*  
The PI, a fully appointed faculty member, receives one month release time for $9,000 and one month summer $9,000 ($9,000 x 0.42 + $9,000x0.09 =$4,590 ) for the first year, escalating by 3% in subsequent years.

MSU full remission of tuition, fees, and graduate student health insurance to all graduate students who are employed on-campus (INSERT PERCENTAGE) % time or greater during the academic year. The rate for in-state remission is (INSERT RATE) per semester, which is escalated annually in the budget at a rate of (INSERT PERCENTAGE) % per year. The rate for out-of-state remission is (INSERT RATE) per semester, which is escalated annually in the budget at a rate of (INSERT PERCENTAGE) % per year.

Information regarding the fee remission program can be found at MSU Admission WEB.

1. **TRAVEL:**

Foreign: A travel budget of $5,800 is requested for a PI and Co-PI to attend one (1) 5-day meeting for purposes of research collaboration to (Name of place) in year 1 in order to review/update presentations, data collection practices, program guidance, and results. The amount includes airfare, per diem (which includes meals and lodging), and ground transportation. Estimated breakdown of costs are as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Trips** | **Days** |  | **PI(s)** | **Student(s)** |  |
| 1 | 5 |  | 1 | 1 |  |
| **Airfare** | **Meals** | **Hotel** | **Taxi** | **Conf. Reg. PI** | **Conf. Reg. Student** |
| $1,200 | $56/day |  | $75 | $650 | $550 |

\*Updated Per Diem rate may be found on the MSU WEB

1. **EQUIPMENT:** Equipment is per piece at least $5,000 and provide a copy of quotation

Equipment budget of $61,000 is requested for the entire project period and will be used solely for the benefit of the research project as follows:

**Total Year 1:** 2 cameras at $10,000 each.

**Total Year 2:** $17,000 for gamma-ray spectrometers and integration with contextual sensors. Depending on the studies in year 1, we will acquire non-imaging gamma-ray spectrometers made of CdZnTe, LaBr, CsI, or NaI in a hand-portable format that will be combined with contextual sensors, such as visual cameras, depth-sensors, or Lidar.

**Total Year 3:** $10,000 for computer hardware and a depth-sensing system ($5,000 each). The acquisition and processing of nuclear and contextual data requires significant data storage and computer power resources. We will upgrade our currently existing computer server by state-of-the art processors and data storage.

**Total Year 4:** $14,000 for integrated multi-sensor system. We will acquire and evaluate state-of-the art multi-sensor systems for further evaluation of advanced concepts in multi-dimensional sensing and data fusion. By then, we anticipate that depth-sensing technologies will be readily available and integrated in tablet or smart phones in addition to the visual cameras which will provide new opportunities for data sensing and fusion.

1. **PARTICIPANT COST:**1.stipend  
   2.travel  
   3.Subsistence  
   4. Other
2. **OTHER DIRECT COSTS:**

Materials and Supplies: A material and supplies budget of $2,520 is requested for the acquisition of optical components in support of the experimental described in the research proposal.

1. **TOTAL DIRECT COST:**
2. **INDIRECT COSTS:**

Indirect costs are based on University negotiated rates with the cognizant federal authority and are applied at a rate of 51% for the entire project period using the modified total direct cost (MTDC) formula as per the approved rate agreement dated 05/27/2017. Modified total direct costs exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each subaward and subcontract in excess of $25,000. The rates are provisional and subject to change based upon our updated federally negotiated indirect cost rate agreement.

J.**TOTAL DIRECT AND INDIRECT COSTS**