Venkaiah Chowdary Kavuri

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October 9, 2015

Dear Hiring Manager,

I am Venkaiah Kavuri, postdoctoral researcher from Department of Physics at University of Pennsylvania. I am writing in to express my interest in **Principal Applied Mathematician/Scientist** position at your company. I am currently working in Dr. Arjun Yodh's lab in Physics Department.

While working as a Postdoc at University of Pennsylvania; I used Diffuse Optical Tomography(DOT) to reconstruct 3D breast cancer images. I also explored inverse problems using Gauss-Newton, Levenberg-Marquardt and Conjugate gradient methods to find optimal results for locating cancer locations. I also originated, designed and built a optical flow measurement device to be used in Neural ICU. During my Phd at University of Texas Arlington, I applied statistical methods to develop a new technique for detecting and imaging early stages of aggressive prostate cancer by creating, engineering and building a TRUS-compatible DOT Probe. I also originated, designed and built multi-spectral, low-cost and portable DOT instrumentation then improved existing reconstruction methods by combining depth compensation algorithm and L1-regularized least squares method.
Some of my technical proficiencies include:

- Demonstrated record in biooptical modeling using problem-solving techniques such as numerical modeling, inverse problems and optimization.
- Familiar with several linear algebra techniques such as Singular Value Decomposition(SVD), LU decomposition and Eigenvalues.
- In-depth understanding of global and local optimization and a working knowledge of advanced signal processing techniques (such as, Kalman filtering and time-varying frequency analysis).
- Knowledgeable about Ultrasound physics and Photoacoustics.

I welcome the opportunity to participate in a personal interview to answer your questions and better present my qualifications. I look forward to speaking with you soon.

Thank you for your time and consideration.

Sincerely,

Venkaiah Kavuri