Dev P. Chakraborty received his PhD in physics in 1977 from the University of Rochester, NY. Following postdoctoral fellowships at the University of Pennsylvania (UPENN) and the University of Alabama at Birmingham (UAB), since 1982 he has worked as a clinical diagnostic imaging physicist. He is American Board of Radiology certified in Diagnostic Radiological Physics and Medical Nuclear Physics (1987). He has held faculty positions at UAB (1982 - 1988), UPENN (1988-2002) and the University of Pittsburgh (2002-2016). At UPENN he supervised hospital imaging equipment quality control, resident physics instruction and conducted independent research. He is an author on 78 peer-reviewed publications, the majority of which are first-authored. He has received research funding from the Whittaker Foundation, the Office of Women's Health, the FDA, the DOD, and has served as principal investigator on several NIH RO1 grants.

His work has covered varied fields: hyperthermia, physical measures of image quality, feasibility of digital tomosynthesis for inner-ear imaging (his RSNA poster received a Certificate of Merit), building a digital subtraction angiography apparatus for interventional neuro-angiography and computerized analysis of mammography phantom images (CAMPI). He conducted (1986) the first free-response ROC study comparing Picker International's prototype digital chest imaging device to a conventional device. In 1989 he coined the term AFROC to describe the currently widely used operating characteristic for analyzing free-response studies. Since 2004 he has distributed JAFROC software for the analysis of free-response and ROC studies. Over 107 publications have used this software and RJafroc, an enhanced R-version, and it is being used in courses and PhD projects worldwide. He is internationally recognized as an expert in observer performance methodology. He recently served as statistical consultant to General Electric on the evaluation of the VolumeRad chest tomosynthesis device.

Dr. Chakraborty's overarching research interest has been measuring image quality, both at physical and at perceptual levels. He showed, via CAMPI, that a widely used mammography QC phantom could be analyzed via an algorithm, achieving far greater precision than radiologic technologists. With the realization that wide variability (about 40%, 1996 study by Beam et al) affects expert radiologist interpretations, over the past two decades Dr. Chakraborty's research has focused on observer performance measurements, specifically the free-response paradigm, modeling and quantifying visual search performance, and developing associated statistical analysis. He has proposed the radiological search model (RSM) that resolves several basic questions, dating to the 1960s, about ROC curves. Recently he has developed an RSM-based ROC curve-fitting method that yields important insights into what is limiting performance, namely, search performance: 28% vs. 88% for lesion classification performance, for a dataset consisting of 236 ROC interpretations, a huge dataset. Yet, CAD designers are focused on improving classification performance and all assume CAD is perfect at search (Ron Summers, NIH, private communication, ca. 2011). In 2016 Dr. Chakraborty formed ExpertCAD Analytics, LLC, to pursue novel ideas to develop expert-level CAD that can be used as a *first* reader.