Catherine C. Large

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Education

University of Tennessee – Knoxville, TN, *Ph.D. Candidate, Nuclear Engineering*, 2015
University of Tennessee – Knoxville, TN, *M.S., Physics, Minor Mathematics*, 2000
Emory and Henry College – Emory, VA, *B.S., Physics, Minor Mathematics*, 1992

Experience

July 2019 – present
Sr Product Manager, Philips Radiation Oncology Systems, Fitchburg, WI

- Managing all Pinnacle Products (past, present, future)
- Developed pilot program to test feasibility of First of Kind (FOK) process
- Forcing more physics to be considered at every phase of the development process and increase in clinical testing
- Rekindling partnership with clinical sites for protection research and "show case" sites
- Overseeing communicating to engineering to ensure customer requests captured, coded, and tested appropriately

July 2017 – July 2019
Clinical Test Lead, Philips Radiation Oncology Systems, Fitchburg, WI

- Developed first ever clinical testing program for pre-released software
- 16.0.2 Release: Over 400 hours of testing organized between internal clinical specialists and an intimate group of external clinicians
  - Had to develop methodology by which external tester could access software
    - External facing server with OpenText access
- 16.2 Release: Over 800 hours of testing between same groups
- Testing team found more than 10% of bugs which engineering was able to address before software release
  - 2 severity 2 defects (highest amongst our severity system as Pinnacle does not treat patients)
- Wrote and maintained external facing contracts for validation and usability
- Presented findings to management and leadership teams progress and findings
- Support Product Management for product development according to testing findings
- Developing TrueBeam and Versa validated model for quick distribution
- Training RT Tech for clinical dosimetry testing

November 2009 – July 2017
Physics Support Specialist, Philips Radiation Oncology Systems, Fitchburg, WI

- Model all types of LINACs but also support any clinical quality assurance questions, IMRT QA, VMAT QA, and dosimetery support.
- Teach the one week physics course, which covers how to model gathered beam data and overview of the physics behind treatment planning systems and dose algorithms.
- Provide demonstrations at industry shows of existing and emerging software.

- Implemented several programs designed to streamline the customer support process. These include a Physics support email inbox, complaint handling process, and complaint escalation process that bridges customer support to subject matter experts in engineering. Ancillary involvement in numerous other projects
- Represent Customer Support in cross-functional bug committee meetings that assess severity.
- Heavily involved in new product projects for dynamic planning and proton planning, including providing product definition, physics expertise and direction, training, demo's.
- Specialist in modeling the Elekta Agility MLC head and the VERSA HD
- Specialist in modeling the Varian TrueBeam both standard and HD MLC
- Responsible for all customer facing physics classes

July 2002 – November 2009

Medical Physicist, Summit Cancer Services, Chambersburg, PA

- Monthly QA (TG-40), Monthly Calibrations (TG-51) on Elekta SLP
- 2-D, 3-D, and IMRT Treatment planning using Pinnacle 8.0 for Elekta
- Responsible for patient chart checks
- Co-worked on the implementation of a High Dose Rate brachytherapy project
- Implemented LDR program using a turn-key operation treatment planning company
- Implemented IMRT program from treatment planning, to increased modeling, to treatment delivery, and QA using Mapcheck and RIT software
- Shielding calculations for installation of Tomotherapy Unit
- Tomotherapy Treatment Planning, Daily-Weekly-Monthy-Anuual QA; had started using Tomodose but used Tomotherapy's scanning/analysis software previously
- Participated in Tomotherapy Implementation – 85th machine in the nation to go clinical
- Secondary radiation safety officer
- NRC qualified Authorized Medical Physicist

March 2002 – July 2002

Medical Physicist, Lima Memorial Hospital, Lima, OH

- Monthly QA (TG-40), Monthly Calibrations (TG-51)
- 2-D and 3-D Treatment planning using Pinnacle 5.2
- Responsible for patient chart checks
- IMPAC Record and Verify Systems
- Implementation Rapid–strand seeds for prostate brachytherapy
- Integration of therapist competencies ranging from hand calculations to simple 2-D planning

2001-2002 *Medical Physics Resident*, Thompson Cancer Survival Center, Knoxville, TN

- Monthly QA (TG-40), Monthly Calibrations (TG-21), and Annual calibrations on Varian Clinac 6/100 and Varian 2100C Linear Accelerators
- 2-D and 3-D Treatment planning using Pinnacle 5.2 and 6.0
- Experienced with IMRT planning and IMRT dose verification
- Responsible for patient chart checks
- Dabbled in started all types of brachytherapy

- Experienced with Varis Record and Verify system, IMPAC Record and Verify Systems, GE CT scanners, Lumisys CR systems, RIT software and Scanditronix software and equipment.
- Relevant coursework includes Medical Physics I and II, Medical Imaging, Internal Dosimetry, and Radiation Biology

2000-2002 *Graduate Research Assistant,* University of Tennessee, Knoxville, Nuclear Engr. Dept.

- Gathering, processing, and parameterization of PET data with regard to BNCT; cell growth and assay with different chemical compounds for use with BNCT
- Relevant coursework includes Radiation Shielding, Radiological Assessment and Dosimetry, Internal Dosimetry, and Radiation Protection Engineering.

1993-2000 *Graduate Teaching Assistant,* University of Tennessee, Knoxville, Physics Dept

- Taught undergraduate physics laboratories while doing research
- Research areas included: environmental impediment to DNA motion, fluorescent properties of DNA bases, hydration effects of DNA bases, and the relevance between structure and function of the DNA double helix

Other Skills Experienced with Microsoft Word, Excel, SCALE 4.3 and 4.4, RESRAD, and various Internet applications, Basic, Fortran, C and HTML computer languages.

Papers and Presentations

S. Georghiou, C.C. Large, A. Ababneh, A Mechanism for DNA Bending and for DNA Folding in the Nucleosome Based on Many-Body Polarization Effects on the Electrostatic Interactions Across the Minor Groove, in press.

S. Georghiou, C.C. Large, A. Ababneh, Hydration Effects on the Fluorescent Properties of the Bases of DNA, in press.

Karen D. Brumley, Catherine C. Large, Chester R. Ramsey, Absolute IMRT Dosimetry With Desktop Computed Radiography, AAPM 43rd Annual Meeting, Salt Lake City UT; July 22-26, 2001.

Catherine C. Large, Karen D. Brumley, Chester R. Ramsey, Intrafraction Prostate Motion, AAPM 43rd Annual Meeting, Salt Lake City UT; July 22-26, 2001.

Catherine C. Large, Excited state properties of deoxyguanosine, and the electrostatic interactions in DNA, Imprint 2000, Thesis 2000.

*S. Georghiou, S.M. Kubala and C.C. Large "Environmental Control of the Deformability of the DNA Double Helix," Photochemistry and Photobiology 1998, **67**, 526.*

References Available upon request