

NOOR MAIL

Clinical Medical Physicist, Department of Radiation Oncology, Hillman Cancer Center, UPMC Shadyside
5115 Center Ave, Pittsburgh, PA 15232. EMAIL: mailn@upmc.edu; nm7075@gmail.com
TEL: 412-623-2006 CELL: 412 522 2056

SUMMARY

Proficient in medical imaging, radiation safety, and radiation oncology physics. My clinical services experience includes using the newest technologies for cancer therapy, including HDR, TBI, IGRT, IMRT, VMAT, SRS/SBRT, 4DCT/DIBH, and patient quality assurance. I have extensive experience designing rooms, organizing research projects, and specifying radiation shielding and equipment. My practical experience includes treatment planning, patient quality assurance, and quality control of CT simulators and linear accelerators. I provided residents and junior medical physicists with instruction and training, which aided in the development of my fellow medical physicists. I involved residents, medical physicists, radiologists, and radiation oncologists in clinically oriented research that advances the institution's innovation, technique development, and patient care. For complicated physics-related issue solving, specific methods, intricate computations, project planning, and execution, I collaborated with physicists and doctors.

EDUCATION:

PhD : Medical Physics, State University of New York, Albany, NY, USA, 2004
MS : Medical Physics, State University of New York, Albany, NY, USA, 2000
MPhil : High Energy Physics, Quaid-i-Azam University of Islamabad, Pakistan, 1996
MSc : Physics Karachi University, Pakistan, April 1994

CLINICAL CERTIFICATION:

DABR: Certification in Therapeutic Medical Physics, American Board of Radiology: **2014**
(Maintenance of certification (MOC) requirements are well satisfied)

PROFESSIONAL AFFILIATIONS:

AAPM : Member of the American Association of Physics in Medicine

CLINICAL EXPERIENCE:

- ✓ Conducts monthly and yearly QA for Linear accelerators (equipped with On-Board KV imaging and CBCT) in accordance with TG-142 recommendations
- ✓ Excellent skills in radiotherapy treatment planning including SRS, SBRT, VMAT, IMRT, 3D conformal, 3D Field-in-Field and HDR brachytherapy.
- ✓ Very skillful in Respiratory motion management including 4DCT, DIBH and compression
- ✓ Shielding calculations of Cyber Knife and dual energy Linear accelerators (6 and 18 MV)

- ✓ Work together with physicists and physicians for complex physics related problem solving, special procedures, complex calculations, project organization, implementation and completion
- ✓ Measurement of radiation characteristics and collection of dosimetry data for clinical use
- ✓ Conducts routine patient chart review for treatment progression and accuracy and weekly chart rounds.
- ✓ Provide dosimetry calculations and physics support in Radiation Oncology and Medical Imaging
- ✓ Responsible for radiation safety quality control and quality assurance in Radiation Oncology
- ✓ Quality assurance of CT Simulator, Cone-Beam CT Imaging System XVI and OBI.
- ✓ Lead the SBRT program in Princess Nourah Oncology Center (PNOC), MNGHA, Jeddah
- ✓ Experts in imaging registration including PET-CT, MRI and CT for planning purposes.
- ✓ Characterization and maintenance of various types of flat panel imaging and dosimetry detectors
- ✓ Intensive shielding calculation experience including dual energy Linac and Cyber knife.
- ✓ Established OSLD laboratory which serves for personal dose assessment and patient dosimetry.
- ✓ Treatment plan verification using PTW 2-D Array detector and Octavius phantom.

WORK EXPERIENCE:

Principal Medical Physicist

October 18, 2020 - present

Department of Radiation Oncology
Hillman Cancer Center, UPMC Shadyside,
5115 Center Ave, Pittsburgh, PA 15232.

Clinical Assistant Professor,

University of Pittsburgh Medical Center
Pittsburgh, PA

Senior Medical Physicist Consultant,

May 2011- October 1,

Princess Norah Oncology Center, PNOC
Department of Radiation Oncology,
Ministry of National Guard Health Affairs
King Abdulaziz Medical City, Jeddah

Joint Appointments:

Research Scientist,

King Abdullah International Medical Research Center
Ass. Professor,
Department of Applied and radiological sciences,
King Saud bin Abdulaziz Medical University for Health Sciences

Research Associate

Jan 2007- May 2011

Department of Radiation Physics
Princes Margaret Hospital: Toronto, Ontario, Canada

Postdoctoral Fellow

April 2005 - Dec 2006

Department of Medical Physics
Sunnybrook Odette Cancer Center,
Toronto, Ontario, Canada

Research Associate

Jan 2004- April 2005

Department of Physics (Center for X-ray Imaging)
State University of New York, Albany

PATENTS:

Carolyn MacDonald, Noor Mail and Zewu Chen, "X-ray Imaging Systems Employing Point- Focusing, Curved Monochromating Optics, US Patent # **7583789** published September 1, (2009).

RESEARCH PUBLICATIONS:

1. Mail N, Alshamrani KM, Lodhi RN, et al. Evaluation of positioning accuracy in head-and-neck cancer treatment: A cone beam computed tomography assessment of three immobilization devices with volumetric modulated arc therapy. J Biol Methods. **11**(3), 1-11 (2024)
2. Fang Li, Noor Mail, Maria diMayorca, Travis McCaw, Cihat Ozhasoglu, Ronald Lalonde, Jina Chang, Mohammed Saiful Huq, "Single isocenter HyperArc treatment of multiple intracranial metastases: Targeting accuracy" J Appl Clin Med Phys. **25** (1) 1-8 (2024)
3. Fayez D Alshehri, Noor Mail, et al "Assessment of Different Modalities and Their Impact on Patients with Ruptured Intracranial Arteriovenous Malformation" Cureus **1** , 1-11 (2020)
4. Noor Mail, S. Al-Ghamdi and A. Saoudi "Customized double-shell immobilization device combined with VMAT radiation treatment of basosquamous cell carcinoma of the scalp" Journal of Applied Clinical Medical Physics **20** (2): 84–93 (2019).

5. Noor Mail, Y. Albarakati, M. Ahmad Khan, F. Saeedi, N. Safadi, S. Al-Ghamdi and A. Saoudi, "The Impact of Dental Filling Materials on RapidArc Treatment Planning and Dose Delivery: Challenges and Solutions", *Med. Phys.* **40** (8), 081714 (2013)

6. Noor Mail, Muhammad Yusuf, Nazeeh Alothmany, A. Abdulrahman Kinsara, Fahad Abdulkhaliq, Suliman M. Ghamdi and Abdelhamid Saoudi, "A Methodology for Patient Dosimetry During On-Board CBCT Imaging Using Optically Stimulated Luminescence Detectors", *Journal of Clinical Applied Medical Physics*, Vol. **17**, No 5, 482-499 (2016).

7. Fahad Abdulkhaliq, Noor Mail, Suliman M. Ghamdi and Abdelhamid Saoudi, "A qualitative and quantitative analysis of radiation dose and image quality of computed tomography images using adaptive statistical iterative reconstruction" *Journal of Clinical Applied Medical Physics*, Vol. **17**, No. 3, 419-432 (2016)

8. N. Mail, D. J. Moseley, J. H. Siewerdsen and D. A. Jaffray "Application of Bowtie Filtration for Cone-Beam CT Image Quality" *Medical Physics*; Vol. **35** (12), 22-32 (2008).

9. N. Mail, D. J. Moseley, J. H. Siewerdsen and D. A. Jaffray, "An Empirical Method for Lag Correction in Cone-Beam CT" *Medical Physics*; Vol. **35** (11), 5187- 5196 (2008).

10. N. Mail, C. MacDonald and W. M. Gibson, "Microscintigraphy with high resolution collimators and radiographic detectors," *Medical Physics*; Vol. **36** (12), 645-655 (2009).

11. N. Mail, P. O'Brien and G. Pang "Ghosting analysis for an indirect conversion flat panel imager" *The Journal of Applied Clinical Medical Physics*; volume **8** (3), 137-146 (2007).
The RIT Award of Excellence for the Best Medical Imaging Article in 2007 from Journal of Applied Clinical Medical Physics

12. Alshehri F D, Mail N, et al. "Assessment of Different Modalities and Their Impact on Patients with Ruptured Intracranial Arteriovenous Malformation Treated in King Abdulaiziz Medical City in Jeddah, Saudi Arabia", *Cureus* 12(2): (2020).

13. N. Mail, C. A. MacDonald, Z. Chen, W. M. Gibson "Focused beam total x-ray fluorescence using doubly curved crystal optics with a conventional source," *Spectrochimica Acta* **60** (4), 471-478 (2005).

14. Muhammad Yusuf, Nazeeh Alothmany; Abduraheem A. Kinsara; Saoudi, Abdelhamid and Noor Mail, "Characterization of Optically Stimulated Luminescence for Assessment of Breast Doses in Mammography Screening" *Journal of Radioprotection*, **51**(1), 51-58 (2016).

15. Muhammad Yusuf, Abdelhamid Saoudi, Nazeeh Alothmany, Dheya Alothmany, Sameer Natto, Hattan Natto, Nurul Islam Molla, Noor Mail, Ahmad Hussain, Abdulraheem Abdulrahman Kinsara, "Characterization of the Optically Stimulated Luminescence nanoDot for CT Dosimetry," *Life Sci. J.*, vol. **11**(2), pp. 445–450 (2014).
16. Noor Mail, Y. Albarakati, M. Ahmad Khan, F. Saeedi, N. Safadi, S. Al-Ghamdi and A. Saoudi, "Dosimetric Consideration for Patients with Dental Filling Materials Undergoing Irradiation of Oral Cavity using RapidArc™: Challenges and Solution", *Medical Imaging, SPIE* **8313** (2012)
17. N. Mail, C. A. MacDonald, Z. Chen, W. M. Gibson " Potential Application of Doubly curved crystal optics with a conventional source," *X-Ray Sources and Optics, SPIE* **5537**, 94-104 (2004).
18. N. Mail, D. Li and C. A. MacDonald, " A comparison of Doubly Curved Crystal and Polycapillary Optics for Monochromatic Beam Production from a Clinical Source," in *Physics of Medical Imaging, SPIE* **5745**, 76-83 (2005).
19. C.A. MacDonald, N. Mail, W.M. Gibson, SM Jorgensen, E L Ritman, "Micro gamma camera optics with high sensitivity and resolution", in M. J. Flynn, ed., *Physics of Medical Imaging, SPIE* vol. **5745**, pp.1-6, 2005.
20. C.A. MacDonald, N. Mail, F. Sugiro, D. Li, "Monochromatic Applications of Polycapillary Optics," in *Laser-Generated and Other Laboratory X-Ray and EUV Sources, Optics, and Applications*, George A. Kyrala, Jean-Claude J. Gauthier, Carolyn A. MacDonald, Ali M. Khounsary, eds., *SPIE* **5196**, (2003).
21. W. M. Gibson, C.A. MacDonald, and N. Mail, "Potential for Radioscintigraphy with Polycapillary Optics," in *Advances in Laboratory-Based X-Ray Sources and Optics III*, Ali M. Khounsary , C.A. MacDonald, eds., *SPIE* **4781**, 104-111 (2002).
22. N. Mail, W. M. Gibson, and, C.A. MacDonald, "Molybdenum Microfocus Source Coupling to Polycapillary Optics for Powder Diffraction," *Advances in Laboratory-Based X-Ray Sources and Optics III*, Ali M. Khounsary, C.A. MacDonald, eds., *SPIE* **4781**, 87-95 (2002).

PUBLICATIONS IN-PROGRESS:

23. Scatter-to-Primary Ratio in CBCT Projections Versus Gantry Angle for Off-Centering ISO and its Impact on Image Quality: During Peripheral Cranial Mets (submitted to AAPM, 2024 for Oral Presentation).

24. Phantom Based Quantitative analysis of CBCT image quality for available Hypersight reconstruction algorithm: Invstigation of Scatter correction Algorithm for Low and High Scatter cases.
25. OAR delineation using Limbus and qualitative analysis of Image Quality for patient images.
26. Noor Mail, and Nabeel Safadi, "Induction chemotherapy and BID-VMAT treatment of Larynx Cancers: Radiobiological Evaluation in comparison with the conventional and accelerated fractionation schemes"

ABSTRACTS: AAPM & ASTRO:

1. Scatter-to-Primary Ratio in CBCT Projections Versus Gantry Angle for Off-Centering ISO and its Impact on Image Quality: During Peripheral Cranial Mets (submitted to AAPM, 2024 for Oral Presentation).
2. Noor Mail, Fang Li, Maria diMayorca, Ron Lalonde, David Clump and M. Saiful Huq, "Alignment accuracy RS patients treated on True Beam STX: assessment of online and offline 6D couch Shifts" Med. Phys. October **11** (2022).
3. Noor Mail, Fang Li, Maria diMayorca, Ron Lalonde, M. Saiful Huq Does , "Off-Centering of Treatment Isocenter impact on CBCT Image Quality for brain-met patients? Med. Phys. October **10** (2022).
4. N. Mail, J. H. Siewerdsen, D. J. Moseley and D. A. Jaffray, "An Empirical Method for Lag Correction in Cone-Beam CT," Med. Phys. **34**, 2342 (2007).
5. N. Mail, J. H. Siewerdsen, D. J. Moseley and D. A. Jaffray, "The Influence of Bowtie Filtration on Cone-Beam CT Image Quality," Med. Phys. **34**, 2343 (2007).
6. N. Mail, J. H. Siewerdsen, D. J. Moseley and D. A. Jaffray, "Characterization of a New Trixell Detector for Image Quality Perspective" Med. Phys. **35**, 2668 (2008).
7. N. Mail, J. H. Siewerdsen, D. J. Moseley and D. A. Jaffray, "Cone-beam CT Lag Correction Models: Effect of Optimized Parameter Selection" Med. Phys. **36**, 2697 (2009).
8. N. Mail, D. J. Moseley and D. A. Jaffray, "Parameterization of Scatter Dependent Artifacts in Cone-Beam CT," Med. Phys. **37**, 3442 (2010).
9. S. Siddique, S. J. Bartolac, G. Bootsma, N. Mail, E. Fiume, and D. Jaffray, "Depth of Field in Radiography," Med. Phys. **36**, 2472 (2009).

10. N. Mail, Y. Albarakati, M. Ahmad Khan, F. Saeedi, N. Safadi, S. Alghamdi, A. Saoudi, "The Impacts of Dental Filling Materials on RapidArc™ Treatment Planning and Dose Delivery: Challenges and Solution", Medical Imaging and Therapeutic section, ESTRO **31** (2012).
11. Eman K, N. Mail, Y. Albarakati, S. Alghamdi, A. Saoudi, " A qualitative study of RapidArc Treatment Planning of Nasopharynx patients" ESTRO **31**, (2012).
12. M. Ahmad Khan, N. Mail, Y. Albarakati, M. Ahmad Khan, F. Saeedi, N. Safadi, S. Alghamdi, A. Saoudi , "Benefit of systematic Rapidarc re-planning and adaptive therapy of Nasopharyngeal cancer" ESTRO 31- **1080** (2012).
13. Abrar Hussain, Noor Mail, Belal Moftah and Abdelhamid Saoudi, "Significance of Bright and Dark Streaking in CT Images of KV and MV Beam Qualities" ICRM2012. **07**, 2012.

RESEARCH ACTIVITIES AND INTEREST (2020-PRESENT), UPMC HILLMAN CANCER CENTER

1. HyperSight:
Hypersight will have a positive impact on treatment quality and outcomes, we are investigating HyperSight CBCT image quality and its application in the clinic, such as adaptive radiotherapy. We would like to conduct the following studies and analyses/evaluations,
 - A. OAR delineation using Limbus and qualitative analysis of Image Quality for patient images.
 - B. Adaptive radiation Therapy planning using HSCBCT: Pelvis
 - C. Image acquisition, alignment timing and accuracy and its impacts on clinical efficiency
 - D. 4DCBCT capability and its impact on target alignment and precision
 - E. Phantom Based Quantitative analysis of CBCT image quality for Hypersight available reconstruction algorithm.
2. SRS Cranial Brain Mets:
 - A. Alignment accuracy for SRS patients treated on True Beam: assessment of online and offline 6D couch Shifts.
 - B. Scatter-to-Primary Ratio in CBCT Projections Versus Gantry Angle for Off-Centering ISO and its Impact on Image Quality: During Peripheral Cranial Mets
 - C. "Off-Centering of Treatment Isocenter impact on CBCT Image Quality for brain-met patients?
 - D. Single isocenter HyperArc treatment of multiple intracranial metastases: Targeting accuracy.
3. Lung SBRT Ultra Central Non-Small Cell Cancer: Comparing SIB cases treated after 2020 to conventional SBRT before 2020. Patient outcomes and quality of life

RESEARCH PROJECTS/PROPOSALS (2011-2020): PNOC JEDDAH

1. The Impact of Dental Filling Materials on RapidArc Treatment Planning and Dose Delivery in Head and Neck Patients
2. OSLD laboratory serving for Personal Dose Assessment, Patient Dosimetry and Medical Imaging Doses (CT, CBCT and Mammography)
3. Technique Development for Radiation Therapy Treatment of Complex Targets such as the Scalp and Skull diseases.
4. Dosimetric Comparison between VMAT and IMRT in Patients of Pediatric Lymphoma
5. Radiobiological evaluation of the head and neck VMAT plans for different fractionation schemes including conventional, BID, sequential and integrated boost
6. A qualitative and quantitative analysis of radiation dose and image quality of computed tomography images using adaptive statistical iterative reconstruction
7. A randomized clinical trial Assessing the Effect of PDM in Reducing the Severity of Radiotherapy-Associated Oral-Mucositis Induced by Dental Filling in Head and Neck BID treatment
8. Review-based treatment algorithm for brain arteriovenous malformations (AVM) to be used by MNGHA health professionals following the diagnosis of the AVM.
9. Induction chemotherapy and BID-VMAT chemo-radiation of Larynx Cancers: Radiobiological Evaluation in comparison with the conventional and accelerated fractionation schemes
10. A Dosimetric Comparison of Breast/chest wall Radiotherapy Techniques to Treat Loco-regional Lymph Nodes Including the Internal Mammary Chain: In vivo dosimetry with OSLD to investigate the impact of breathing motion and setup error on the skin doses. Techniques including , 1) 3D tangential, 2) Field-in-Field tangential, 3) Tangential IMRT and 4) Hybrid

RESEARCH ACTIVITIES AND INTEREST (2007 – 2011 PMH) To (2012 – 2020 PNOC):

- ✓ Developed technique to reduce mucositis and improve dose homogeneity in head- and-neck patients presented with dental filling material
- ✓ Developed techniques for complicated targets/sites such as diffuse Basosquamous cell carcinoma of the scalp and adjacent skull bone (infiltrated to brain) using VMAT.
- ✓ Adaptive and image-guided radiation therapy for head and neck patients (Still continue)
- ✓ Physics of X-ray imaging systems: cone-beam CT; X-ray scatter; imaging geometries and Respiration correlated CT/4D CT
- ✓ Detector development and characterizations. The performance characteristics of Flat panel Imager includes dark current drift, dark and flood noise, gain and linearity, noise power spectrum, MTF, detection quantum efficiency, image lag and ghosting measurements.
- ✓ Radiobiological evaluation of the IMRT and VMAT treatment plans of all head and neck patients (treated in MNGHA) using Eclipse version 13.7. The main purpose was to obtain TCP and NTCP data for conventional and BID fractionations schemes as well as sequential and

integrated boost. To define a new plan quality parameter based on the TCP, NTCP, homogeneity and conformity.

- ✓ Established OSLD laboratory to serves for Personal Dose Assessment, Patient Dosimetry and Medical Imaging Doses (CT, CBCT and Mammography)
- ✓ Molecular Imaging Research: Preclinical and translational cancer research

TEACHING AND SUPERVISION EXPERIENCE:

- ✓ Teach the following radiological physics courses in King Saud bin Abdulaziz University for Health Sciences
 - 1) Principle of Radiotherapy Physics
 - 2) Medical Imaging Techniques
 - 3) MRI-RAD 416
 - 4) X-ray film and digital radiography
 - 5) Quality Assurance of Medical Imaging System RAD 321
 - 6) Special Imaging Techniques and treatment procedures *RAD320*
 - 7) Radiologic Imaging- RADS 319
 - 8) Computed Tomography RAD 314
 - 9) Digital Detectors RAD 312
- ✓ Supervise medical students in research, King Saud bin Abdulaziz University for Health Sciences
- ✓ Supervised several master students in Radiation Physics.
- ✓ Conducted medical physics training sessions to junior medical physicists and technologists in radiation therapy and medical imaging.

PREVIOUS RESEARCH EXPERIENCE AND SKILLS:

1. POST DOCTORAL FELLOW, ODETTE CANCER CENTRE, SUNNYBROOK, TORONTO

Image-Guided-Radiotherapy for Lung Cancer

Worked on rapid low dose 3D image-guided radiation therapy treatment of lung cancer using cone beam digital tomosynthesis at diagnostic kV and therapy MV beam qualities. Designed and built lung motion phantoms to simulate breathing motion in real humans and conducted a series of experiments to locate and measure the size of lung tumor using 4D digital tomosynthesis.

Ghosting, Image Lag and Lag correction model:

Quantitatively analyzed the ghosting and image lag at kV diagnostic and MV therapy X-ray beam qualities. Developed a model based on the image lag and ghosting data to correct for lag and ghosting artifacts. This model has strong applications in correcting fluoroscopic, cone beam CT, and cone beam digital tomosynthesis images.

2. WORK DURING PhD AND POSTDOC, CENTER FOR X-RAY OPTICS, UNIVERSITY AT ALBANY, NEW YORK (8/2000 – 04/2005)

Micro Gamma Camera:

Designed, Developed and Made a Micro Gamma Camera using Polycapillary X-ray Optics. Achieved very good efficiency and 1000 times higher sensitivity compared to Pinhole Gamma Camera.

Radioscintigraphy and Brachytherapy seeds localization and dose measurements:

Designed and built imaging system using polycapillary x-ray optic to image and locate brachytherapy seeds inside a breast phantom. Images of the distributed radioactive sources (^{125}I) with polycapillary optic showing resolution 30 times better than conventional gamma cameras with higher sensitivity and seed's position accuracy of 100 μm .

Multi-modality Imaging Systems:

Designed and developed multi-modality imaging systems including refractive index contrast, phase-contrast, diffraction-enhanced and monochromatic imaging systems. Previously these multi-modality systems were only possible with synchrotron sources that could be used in the standard laboratory but now it is possible with low power sources.

Monochromatic Radiography with DCC:

Designed and built a setup for monochromatic radiography involving doubly curved crystal (DCC) optics and low power molybdenum microfocus x-ray source. Conducted the images of a designed step phantom and small animal tissue, showing high contrast compared to conventional images.

X-ray Fluorescence Mapping:

X-ray fluorescence images were obtained for the localized contaminants with high spatial resolution using DCC optics with low power x-ray source. Lead distribution was studied in the human bone using x-ray fluorescence mapping.

AWARDS:

- ✓ The RIT Award of Excellence for the Best Medical Imaging Article in 2007 from the Journal of Applied Clinical Medical Physics.
- ✓ First Prize Award from Optical System Company (Albany, NY) on the development of Total External X ray Fluorescence system to detect sulfur in Fuel (Oil) and lead contamination in human bone with accuracy in the order of 10^{-15} gm
- ✓ Nominated for Ph.D. thesis distinguished awards, department of physics, State University of NY Albany.
- ✓ 1995, Dr. Abdussalam Scholarship Award from the Dr. Abdussalam Center for Theoretical Physics, Italy.

TECHNICAL SKILLS:

- ✓ Linear accelerators: Elekta and Varian
- ✓ CBCT Elekta Synergy System and Varian OBI
- ✓ Eclipse Planning System (version 8.6, 11 and 13.7)
- ✓ QA Tools: Daily QA check device, Mapcheck, PTW Octavius, Pipspro, PTW scanning system
- ✓ IMRT, VMAT, SBRT, HDR and 3D conformal planning.
- ✓ Toshiba CT Scanner (Aquilion One) and Siemen CT Simulator
- ✓ Detectors used and maintained Cylindrical Ionization chamber, Plane Parallel Plate Chamber, Si:Li, HPGe, CdZn, GM Counter, computed radiographic FUJI image plate, TLD and OSLD, direct and indirect flat panel detectors (FPDs), CID, CCD and gamma cameras were used and maintained.
- ✓ Small focal spot sources
 - a) Developed an Ultra-Bright Microfocus X-ray Source with Oxford Instrument Inc for phase contrast imaging and optics applications.
 - b) Several x-ray imaging sources including, chromium, copper, molybdenum, and tungsten microfocus, and a copper rotating anode were characterized and maintained.
- ✓ X-ray optics for medical use
 - Doubly Curved Crystal Optics (DCC), polycapillary collimating, focusing and filtering optics and flat crystal monochromators etc.
- ✓ Electronics instruments
 - Preamplifier, multi-channel analyzer, source power supplies, motion controller etc.

COMPUTERS SKILLS:

Matlab, Imaging Software, Microsoft Office 2012, Microcal Origin, Excel etc.

PERSONAL INFORMATION:

Country of Citizenship : Canada
Language Skill : English, Pashtu, Urdu and Hindi

REFERENCES: