

# AREEN AL.BASHIR

Biomedical Engineering Department  
Jordan University for Science and Technology  
Irbid, Jordan, P.O Box 3030

Email: [akbashir@just.edu.jo](mailto:akbashir@just.edu.jo)  
Tel: (962)-720-1000 ext. 22595

## Education

- **Wayne State University, Detroit, MI, USA.**

PhD (Winter 2007- Fall 2010)

Major: Biomedical Engineering Department.

Topic: Quantification of Vascular Parametric Indices Using Dynamic Contrast-Enhanced Magnetic Resonance Imaging

- **Wayne State University, Detroit, MI, USA.**

MS (Fall 2005 – Fall 2006)

Major: Biomedical Engineering

- **Jordan University of Science and Technology, Jordan.**

Bachelor of Engineer (Nov. 1998 – Jun. 2003)

Major: Biomedical & Instrumentation Engineering

.

## Publications

- E. Mark Haacke, Cristina L. Filletti, Ramtilak Gattu, Carlo Ciulla, **Areen Al-Bashir** and others. New algorithm for quantifying vascular changes in dynamic contrast-enhanced MRI independent of absolute  $T_1$  values. *MRM*, 2007; 58: 463-472.
- Gilda G. Hillman, Vinita Singh-Gupta, Hao Zhang, **Areen K. Al-Bashir**, and others. Dynamic Contrast Enhanced Magnetic Resonance Imaging of Vascular Changes Induced by Sunitinib, an Anti-Angiogenic Drug, in Murine Kidney Tumors. *Neoplasia*, 2009. **11**(9): p. 910-20.
- Gilda Hillman, Vinita Singh-Gupta, **Areen Al-Bashir**, Hao Zhang, Christopher Yunker, Judith Abrams and Mark E. Haacke. Dynamic Contrast-Enhanced Magnetic Resonance Imaging of Sunitinib-Induced Vascular Changes to Schedule Chemotherapy in Renal Cell Carcinoma Xenograft Tumors. *Trans Oncol*, 2010 3(5): 293–306.
- Gilda Hillman, Vinita Singh-Gupta, **Areen K Al-Bashir**, Christopher K Yunker, Michael C Joiner, Fazlul H Sarkar, Judith Abrams and E. Mark Haacke. Monitoring Sunitinib-Induced Vascular Effects to Optimize Radiotherapy Combined with Soy Isoflavones in Murine Xenograft Tumor. *Trans Oncol*, 2011, 4(2).
- **Areen K. Al-Bashir**, Gilda G. Hillman, Meng Li, and E. Mark Haacke New DCE-MRI Parametric Maps to Quantify the Vascular Changes Induced by Sunitinib Treatment in Renal Carcinoma Tumors. *Under progress*.

## Abstracts

- G.G. Hillman, V. Singh-Gupta, H. Zhang, **A.K. Al-Bashir**, Y. Katkuri, M. Haacke. DCE-MRI Imaging of Vascular Changes Induced by Sunitinib, An Anti-Angiogenic Drug, in Murine Kidney Tumors. AACR Centennial Conference, Translational Cancer Medicine 2008: Bridging the Lab and the Clinic in Cancer Medicine. Jerusalem, Israel, 2008.
- **A. Al.Bashir**, G. Hillman and E. M. Haacke. DCE-MRI Evaluation of the Effect of the Anti-angiogenic Drug Sunitinib on Murine Renal Cell Carcinoma. WSU, Detroit 2009.
- M. Li, **A. Al.Bashir**, Y. Yu, and E. M. Haacke. Tissue Similarity Map of High Resolution Perfusion Weighted MR Imaging of the Brain. ISMRM 2010.
- **A. Al.Bashir**, G. Hillman, M. Li and E. M. Haacke. Introducing New DCE Parametric Maps to Quantify Vascular Changes Induced by the Anti-Angiogenic Drug Sunitinib. ISMRM 2010.
- Gilda Hillman, Vinita Singh-Gupta, **Areen Al-Bashir**, Hao Zhang, Christopher Yunker, Judith Abrams and Mark E. Haacke. Imaging sunitinib-induced vascular changes by DCE-MRI to schedule chemotherapy in renal cell carcinoma. AACR 101st Annual Meeting, Washington DC, 2010.

## Summary of Work Experience

- **Jan. 2006- current: Harper University Hospital, Detroit, Michigan, USA:** Graduate Research Assistance, part time.
- **Jan. 2009- May 2009: Wayne State University, Detroit, Michigan, USA:** Graduate Teaching Assistance for Magnetic Resonance Imaging course
- **Feb. 2005- Jun. 2005: Jordan University of Science and Technology, Irbid, Jordan:** Lab Technician: Duties included providing technical and administrative support to electronic Lab students.

## Research and Projects

### A. Research and Project for Ph.D Thesis

Dynamic Contrast-Enhanced Magnetic Resonance Imaging (DCE-MRI) has been routinely used to evaluate and quantify the effectiveness of new drugs on the tumor vascular characteristics using gadolinium-DTPA as a contrast agent in MRI scans. It is a non-invasive tumor diagnostic method, where the perfusion in tissue can be visualized and can also provide important functional information about the tissue microvasculature. However, this quantification is not easy. DCE has a lot of parameters that make it a very complex technique, such as finding AIF and choosing the pharmacokinetic model. My goal is to enhance the processing methods used in DCE by introducing new approaches to accurately quantify the cancer therapy results. If this work is successful, it will enhance the clinical decisions regarding tumor treatment.

## B. Training in MRI Techniques

- **DCE MRI:** Dynamic Contrast-Enhanced Magnetic Resonance Imaging (DCE-MRI) is a MR sequence used for assessment of the anti-angiogenic cancer-tumor study treatments, to characterize microvasculature of tumors and quantify tumor blood flow changes in patients that received anti-vascular and anti-angiogenic cancer drug treatments.
- **PW-MRI:** Perfusion Weighted Magnetic Resonance Imaging (PW-MRI) is a MR sequence for imaging the physiology of the microcirculation.
- **SW-MRI:** Susceptibility Weighted Magnetic Resonance Imaging can evaluate and exploits the magnetic properties of blood, iron and other tissues.
- **Tensor Based Image Registration:** introduced a new algorithm for registering brain images and constitutes an improved variant to the classic tensor-based moment-of-inertia rigid body method.
- **Computer Based ECG System:** Computer-based instrumentation is the methodology of using software Programming and PC-based data acquisition hardware to build application-specific instrumentation solutions.

## Organizations & Memberships

- The International Society for Magnetic Resonance in Medicine (ISMRM) *Member since 2009*
- Jordan Engineers Syndicate *Member since 2003*

## References

Mark Haacke, Ph.D  
Director of WSU MR Research Facility  
Wayne State University  
Detroit, Michigan, 48201, U.S.A.  
Email: [nmrimaging@aol.com](mailto:nmrimaging@aol.com)

Gilda G. Hillman, Ph.D  
Associate Professor of Radiation Oncology  
Barbara Ann Karmanos Cancer Institute  
Wayne State University  
Detroit, Michigan, 48201, U.S.A.  
Email: [hillmang@karmanos.org](mailto:hillmang@karmanos.org)