

Erick Oduor, Ph.D.

Research Scientist, IBM Research Africa, Catholic University of East Africa, Nairobi, Kenya
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Professional Statement

I perform research in the areas of Human-Computer Interaction, Computer-Supported Cooperative Work (CSCW), and communications technologies in low-income communities in developing countries (ICTD). My PhD work under the supervision of Dr. Carman Neustaedter focused on how technology supports family communication routines in rural and low-income urban parts of Kenya ([video](#)).

Currently, I focus on the way people think and feel when using digital technologies in their daily routines. This informs the design of interface technologies that support HCI and addresses the problem of converting data into compelling, revealing, and interactive graphics that suit users' needs. The goal is to design systems that are easier and more delightful for people in rural parts of developing countries to use. I do this by continuously exploring how to design, implement, and evaluate these interfaces.

Education

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| 2011 - 2015 | PhD Interactive Arts and Technology , Simon Fraser University
<i>Specialization:</i> Human-Computer Interaction
<i>Thesis Topic:</i> Family Communication Technology Design in Rural and Low Income Parts of Kenya
<i>Supervisor:</i> Dr. Carman Neustaedter |
| 2010 - 2011 | MSc, Applied IT , Chalmers University, Sweden
<i>Specialization:</i> Intelligent Systems Design
<i>Thesis Topic:</i> Concept for an Intelligent Interface for Crisis Management Support System
<i>Supervisor:</i> Dr. Claes Strannegård |
| 2008 - 2010 | BSc, Computer Information Systems , Lee University, USA |

Summary of Qualifications

Research Methods:

- Qualitative methods (affinity diagramming, heuristic evaluations, focus groups)
- Quantitative methods (surveys, observation, structured contextual interviews, coding analysis)
- Interaction and user interface design
- Information architecture, abstraction laddering, problem tree analysis
- Process mapping, stakeholder mapping, concept mapping, bullseye diagramming
- Wireframing/prototyping for user interface design
- Personas/scenarios, personal profiles, experience diagrams
- Conceptual/functional design

Generative and evaluative qualitative UX research methods:

Performance testing, think aloud testing, design critiques, System Usability scales, A/B testing, card sorting

Remote usability, Cognitive and Pluralistic walkthroughs

Moderation, facilitation and analysis of user insights from gathered participant data

Concept ideation:

Thumbnail sketching, schema diagramming

Creative matrix, round-robin

Alternate worlds, concept posters

Storyboarding, scenarios, appearance modelling, fidelity prototyping, mock-ups

Proficiency

International experience gained by working and studying across many countries (Kenya, USA, Sweden, Canada) and visiting Brazil, Seychelles, Rwanda, India, Singapore, Malaysia, Greece and France

User interface prototyping, Microsoft Expression Blend, Adobe Dreamweaver, Axure prototyping tools, Angular JS web application framework, Dreamweaver, Microsoft Expression Blend, CSS styling, PostgreSQL

Team collaboration, brainstorming and communication tools including Slack, GitHub, IntelliJ, Data Analysis with R.

Work Experience

2017 - Current

Nairobi, Kenya

Water: Data for Decision Making:

- Use insights from design activities conducted with partners and county officers in the Kenya Resilient Arid Lands Partnership for Integrated Development (KRAPID) program to inform the research areas for exploration in the design of Water Management as a Service Platform (WMaaSP) application. WMaaSP is a new service on IBM Blue Mix that significantly improves effectiveness of how county water officers and rural communities can manage scarce water resource use, monitoring and allocation remotely.
- Plan and conduct a rotational program for county ICT officers. The Rotational Program is focused on sharing software development skills with the County ICT representatives as these skills pertain to aspects of WMaaSP development and eventual successful adoption. The Program allows the county representatives to work with IBM Research's Engineering Team to learn first-hand how WMaaSP is designed and how it is being iteratively developed.
- Collaborate with USAID, local county government departments of water in five counties, CARE international, Catholic Relief Services (CRS), Food for the Hungry (FH) and other partners to lead the deployment of WMaaSP platform in Arid and Semi-Arid (ASAL) of northern Kenya.
- Lead the deployment of WMaaSP in five counties via planning and training activities with Local Water Associations (WUA), Sub county water officers, department of water and other stakeholders.

- Explore new methods for gathering user feedback from participants living in rural parts of ASAL Kenya to inform the design of WMaaSP.
- Help communities in ASAL regions conserve water in their communities by tracking usage and presenting this information in clear dashboards and visualizations.
- Conduct successful design thinking workshops and focus groups with healthcare, rural community teams, KRAPD partners, county teams, CCUs, and rural communities in Arid and Semi-Arid lands.
- Plan and supervise a knowledge transfer rotational program between IBM engineers and county IT personal to ensure that rural community staff are empowered with the required knowledge to implement related projects moving forward.
- Guide the successful transfer of user study feedback to inform the user interface design for MMU (Healthcare) and discuss the process with development teams.
- Lead, coordinate, and conduct contextual studies in Marsabit, Turkana and Isiolo counties to inform the design of WMaaSP.
- Use Angular framework development to develop of front end applications for WMaaSP web application.

2015 - 2016

Nairobi, Kenya

Healthcare: Design of technology for rural health communities:

- Led the qualitative internal and external research efforts by establishing partnerships and share knowledge with business and development teams.
- Led interviews and design activities with the medical and Community Health Workers (CHWs) from a rural community health facility as we explore the use of ICTs in Hypertension Management via participatory design methods. Insights from our contextual user interviews, observations and site visits informs the design of the MMC via prototyping and iterative design processes.
- Facilitated collaboration and led client interaction to define research agenda in non-communicable diseases (NCD) management using technology with Lwala Health Facility
- Set up focus group sessions, user interviews, design prototyping sessions to ensure that a Medication Management Companion application (MMC) is designed to support clinicians in prescribe medication to patient suffering from co-morbid hypertension and HIV.
- Used study results from interviews with clinicians, pharmacists and CHWs to inform the design of MMC, a new cognitive service on IBM Blue Mix that can significantly improve the effectiveness of prescription and administration of medication for rural health facilities in Africa.
- Led and conducted design thinking sessions and focus group discussions to understand pinpoints of using various stand-alone technologies in Lwala health facility to explore the design of an integrated MMC solution that supports hypertension management and builds on already existing IT infrastructure in our study setting.
- Led and conducted the successful user interface prototyping of the MMC using Axure tools to guide the actual development of this integrated solution for deployment at the Lwala health facility.

Inclusive Financial Services: Design of technology for small businesses:

- Defined the problem space and then completed use case definition that informed the design of an asset product that could support low-income businesses access financing from established institutions without prior banking history.
- Conducted a feasibility study for the Gates Foundation to understand small shop owner's routines and practices with the aim of designing a credit product that could support them in their work.
- Presented study results to the Gates Foundation as part of deliverables on assessing the feasibility of an asset financing product for low income consumers. Results from this larger study were an integral part of highlighting and opportunity that exists within the low-income population for asset financing.
- Provided the design recommendations to the Inclusive Financial Services team to inform the iterative design of the credit product prototype. The ideas from this initial pilot were also investigated in a wider scale study with over 400 consumers in partnership with Nielsen research group.

Agriculture:

- Conducted an exploratory contextual study with rural farmers to inform the design of technology that supports them in their routine activities around timely cultivation, advice on pricing and available markets, support from peers and seamless communication to coordinate government services.

Mobility:

- Conducted contextual interviews to inform the design of design of fleet monitoring technology for the Mobility team.

Achievements @ IBM Research Africa August 2018 - Current

- Successfully conducted exploratory interviews and focus groups with key stakeholders, clients and staff in projects across Agriculture, Healthcare, Inclusive Financial Services and Water.
- Paper on research on comorbid HIV and Hypertension prescription in a rural facility won an Honourable Mention Award for Best Paper at Design of Interactive Systems (DIS 2019), preferred IBM Professional Interest Research Area conference in San Diego, Ca. Paper ranked among the top 2% of submissions to the conference.
- Paper on research with farmers won an Honourable Mention Award at Association of Human Factors in Computing (CHI 2018), top IBM Professional Interest Research Area conference (Top PIC conference) held in Montreal Canada, Paper ranked among the top 5% of 2500 submissions to the SIGCHI 2018 conference.
- Honourable Mention Award for Design of Interactive Services (DIS 2015), a preferred IBM PIC conference, Paper ranked among the top 5% of all submissions.
- Drove successful user adoption of WMaaSP platform via workshops, demonstration and focus groups across five counties in northern Kenya.
- Conducted successful user studies that informed the design of WMaaSP, MMC, Financial inclusion product.

- Successful collaboration with members in Agriculture, Healthcare and Water research teams in research submissions to IBM PIC targeted and PIC top quality conferences.
- Successful IBM co-patent filing (A SYSTEM AND METHOD FOR CONTEXT-BASED DRIVER BEHAVIOR SCORING) - September 2017.
- Successful CHI Paper Submission and acceptance (Practices and Technology Needs of a Network of Farmers in Tharaka Nithi, Kenya) at CHI 2018 - April 2018. *Paper won an Honourable Mention Award at CHI 2018, Paper ranked among the top 5% of 2500 submissions to the SIGCHI 2018 conference.*
- Successful Computer Supported Collaborative Work conference (CSCW) poster acceptance to a top PIC conference, on (2018) **Medication Management Companion (MMC) for a Rural Kenyan Community**, *Conference Extended Abstracts on CSCW* New York, NY.
- Coordinate and oversee a team of research analysts that conducts user research in the KRAPID project
- Mentor developers working in these two sectors, delegating responsibilities, coordinating primary and secondary research projects, and ensuring the quality of deliverables
- Conduct research where required, including moderate sessions, 3rd-party research, and synthesize findings. Create and present findings at top tier conferences in addition to informing the iterative design of technology for use in low income resource settings
- In-depth interviews with farmers, medical practitioners and stakeholders in water management (Arid and Semi-Arid) parts of Kenya
- Usability testing of high-fidelity prototype in healthcare, inclusive financial services and water management projects
- Led the formation of a long-term research partnership with a rural health facility in Kenya
- Formulated, documented and guided research teams on the process of internal and external ethics clearance for our research activities
- Led Design Thinking workshops for students from the Safaricom Academy and the Faculty of Science administration and students at Kabarak University
- Supervised a PhD student at Kabarak University who is currently pursuing HCI research work

Sep 2013 - Feb 2014

Princeton, NJ, USA

- Used Microsoft Expression Blend for designing new interaction models and interfaces for Siemens ultrasound product features
- Designed XAML user interface for Siemens Ultrasound products using Silverlight and WPF
- Worked alongside graphic designers within the Siemens User Group to translate their designs into prototypes
- Deliverables included user research findings and recommendations, and high-fidelity functional prototype
- Developed design recommendations and wireframes to improve usability and consistency in user experience of a financial inclusion alternative lending platform

Achievements

- Deliverables included findings of expert and heuristic review, design recommendations and high-fidelity wireframe screen designs
- Deliverables included personas, scenarios, information architecture and wireframes for healthcare, water project and agriculture
- Managed a small technical team to build and test a working prototype of the application for demonstration to senior management
- Contextual enquiries and discovery interviews and focus groups

April 2013 - June 2013 **Infosys, Bangalore, India**

- Identify gaps on existing specification Standards for Machine to Machine (M2M) Device Management (DM)
- Write a specification framework towards the realization of uniform global standards for machine to machine

Jan 2010 - Nov 2010 **Gothenburg University, Gothenburg, Sweden**

- Supervised master level students at Gothenburg University as they developed the software architecture for mobile and web applications that would aid in crisis response and management

Research Experience

2015 - Present	Research Scientist , IBM Research Africa, Nairobi, Kenya
2014	Research Intern , Siemens Corporate Research, Princeton, NJ
2013	Research Intern , Infosys, Bangalore, India

Teaching Assistant Experience, Simon Fraser University (SIAT)

2014	IAT 431: 3 Studio labs	74 students
2013	IAT 431: 3 Studio labs	74 students
2012	IAT 431: 3 Studio labs	74 students
2011	IAT 100: 2 Studio labs	48 students

Publications: Journal Articles (Refereed)

Oduor, E., Neustaedter, C. & Hennessy, K. (2016) The Design and Evaluation of a Photograph-Sharing Application for Rural and Urban Kenyan Families. IN *Personal and Ubiquitous Computing*, 20.615-633

Neustaedter, C., Pang, C., Forghani, A., **Oduor, E.**, and Hillman, S. (2014) The Future of the Home Video Phone: Explorations of Domestic Video Chat Usage, *Transactions on Computer Human Interaction*, ACM Press, 20 pages.

Neustaedter, C., Pang, C., Forghani, A., **Oduor, E.**, Hillman, S., Judge, T. K., Massimi, M. & Greenberg, S. (2015) Sharing Domestic Life through Long-Term Video Connections. IN *Transactions on Computer-Human Interaction*, 22.31.

Publications: Conference Papers (Refereed)

2019

Oduor, E., Carolyn P., Wachira, C., Bellamy, R., Nyota, T., Remy, S., and Walcott, A. *Exploring Rural Community Practices in HIV Management for the Design of Technology for Hypertensive Patients Living with HIV*. Conference Paper DIS '19, Proceedings of the 2019 Designing Interactive Systems Conference, 10 pages. (**Honourable Mention Award for DIS 2019, Paper ranked among the top 2% of submissions to the DIS 2019 conference**).

2018

Oduor, E., Nyota, T, Wachira, C., Osebe, S., Sekou, R. and Walcott, A. (2018) **Medication Management Companion (MMC) for a Rural Kenyan Community**, *Conference Extended Abstracts on CSCW* New York, NY.

Oduor, E., Waweru, P., Neustaedter, C., Lenchner, J. (2018) *Practices and Technology Needs of a Network of Farmers in Tharaka Nithi, Kenya*. *Proceedings of the Conference on Computer Human Interaction* New York, NY, USA, ACM. (**Honourable Mention Award for CHI 2018, Paper ranked among the top 5% of 2500 submissions to the SIGCHI 2018 conference**).

2017

Kinai A., Marcus, I., Diriye, A. & **Oduor, E.** (2017). *Asset-Based Lending via a Secure Distributed Platform*. Proceedings of International Conference on Information and Communication Technologies and Development (ICTD). New York, NY, USA, ACM.

2016

Walcott-Bryant, A., Tatsubori, M., Bent, O., Bryant, R., **Oduor E.**, Omondi, S., Osebe, S. & Wamburu, J. (2016) *Swerving to Avoid Nairobi's Potholes: Context-based Driver Behavior in Developing Cities*. IEEE 19th International Conference on Intelligent Transportation Systems (ITSC)

Oduor, E., Neustaedter, C., Odom, W., Tang, A., Moallem, N., Tory, M. & Irani, P. (2016) *The Frustrations and Benefits of Mobile Device Usage in the Home when Co-Present with Family Members*, Proceedings of the Conference on Designing Interactive Systems. (**Honourable Mention Award for DIS 2015, Paper ranked among the top 5% of all submissions**).

2015

Melvin, R., Bunt, A., **Oduor, E.** & Neustaedter, C. (2015) *The Effect of Signal Expense and Dependability on Family Communication in Rural and Northern Canada*, Proceedings of the Conference on Computer Human Interaction, New York, NY, USA, ACM.

2014

Hillman, S., Neustaedter, C., **Oduor, E.** & Pang, C. (2014) *User Challenges and Successes with Mobile Payment Services in North America*, Proceedings of Mobile HCI, New York, NY, USA, ACM.

Hillman, S., Neustaedter, C., **Oduor, E.** & Pang, C. (2014) *Mobile Payment Systems in North America: User Challenges and Successes*, CHI '14 Extended Abstracts on Human Factors in Computing Systems New York, NY, USA, ACM, 1909-1914.

Oduor, E., Neustaedter, C., Judge, T., Hennessy, K., Pang, C. & Hillman, S. (2014) *The Reasons Behind Kenyan Family Communication Patterns*, GRAND Conference Research Note (2014).

Oduor, E., Neustaedter, C., Judge, T. K., Hennessy, K., Pang, C. & Hillman, S. (2014) *How Technology Supports Family Communication in Rural, Suburban, and Urban Kenya*, Proceedings of the 32Nd Annual ACM Conference on Human Factors in Computing Systems New York, NY, USA, ACM, 2705-2714.

Oduor, E., Neustaedter, C., Judge, T. K., Hennessy, K., Hillman, S. & Pang, C. (2014) *How Technology Supports Family Communication in Rural, Suburban, and Urban Kenya*, Proceedings of the Conference on Computer Human Interaction (CHI).

2013

Forghani, A., **Oduor, E.**, Hillman, S. & Neustaedter, C. (2013) *Designing Video Communications for Families with Young Children*, Proceedings of GRAND Conference.

Hillman, S., Neustaedter, C., Pang, C. & **Oduor, E.** (2013) *"Shared joy is double joy": the social practices of user networks within group shopping sites*, Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, 2417-2426.

Oduor, E., Neustaedter, C., Hillman, S. & Pang, C. (2013) *Family communication in rural and slum regions of Kenya*, Proceedings of CHI Extended Abstracts on Human Factors in Computing Systems, 847-852.

Oduor, E., Neustaedter, C., Venolia, G. & Judge, T. K. (2013) *The Future of Personal Video Communication: Moving Beyond Talking Heads to Shared Experiences*, CHI '13 Extended Abstracts on Human Factors in Computing Systems New York, NY, USA, ACM, 3247-3250.

Pang, C., Neustaedter, C., Riecke, B. E., **Oduor, E.** & Hillman, S. (2013) *Technology preferences and routines for sharing health information during the treatment of a chronic illness*, *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 1759-1768.

2012

Hillman, S., Neustaedter, C., Pang, C. & **Oduor, E.** (2012) *"Shared Joy is Double Joy": The Social Practices of User Networks Within Group Shopping Sites*, *Technical Report 2012-1023-01*, *Connections Lab*, Simon Fraser University, Surrey, BC, Canada, October.

2009

Oduor Erick Nelson Otieno, Anna Gryszkiewicz, Nihal Siriwardanegea, & Fang Chen. Concept for intelligent integrated system for crisis management *ISCRAM 2010-7th International Conference on Information Systems for Crisis Response and Management: Defining Crisis Management 3.0*, *Proceedings*, ISCRAM.

Publications: Technical Reports

Hillman, S., Neustaedter, **C.**, **Oduor, E.** & Pang, C. (2014) *User Challenges and Successes with Mobile Payment Systems in North America*, *Connections Lab Technical Report 2014-0124-01*, Simon Fraser University.

Pang, C., Forghani, A., **Oduor, E.**, Neustaedter, C., Walker, I. & Robinson, D. (2014) *Reactions to Mixed Context Always-On Video for Connecting Close Personal and Work Contacts*, *Connections Lab Technical Report 2014-0120-01*, Simon Fraser University

Publications: Videos (Refereed)

Oduor, E. & Neustaedter, C. (2014) *The Family Room: A Multi-camera, Multi-display Family Media Space*, *Proceedings of the Companion Publication of the 17th ACM Conference on Computer Supported Cooperative Work and Social Computing* New York, NY, USA, ACM, 289-292.

Publications: Theses

Oduor, E. (2015) *Family Communication Technology Design in Rural and Low Income Parts of Kenya*. PhD Thesis, School of Interactive Arts & Technology, Simon Fraser University, January 2015.

Oduor E. (2010) *Concept for intelligent integrated system for crisis management*. MSc Thesis, Department of Applied IT, Chalmers University.

Publications: Workshop Organization (Peer Reviewed)

Oduor, E., **Neustaedter, C.**, Venolia, G., and Judge, T. (2013) *The Future of Personal Video Communication: Moving Beyond Talking Heads to Shared Experiences*, *Workshop in the Proceedings of the ACM Conference on Computer Human Interaction*, ACM Press, 4 pgs.

Neustaedter, C., **Oduor, E.**, Venolia, G. & Judge, T. K. (2012) *Moving Beyond Talking Heads to Shared Experiences: The Future of Personal Video Communication*, *Proceedings of the 17th ACM International Conference on Supporting Group Work* New York, NY, USA, ACM, 327-330.

Publications: Workshop Papers (Peer Reviewed)

Oduor, E. & Neustaedter, C. (2012) *The Village Media Space: The Initial Design of an Asynchronous Media Space for Developing Countries*, *Workshop on Beyond Talking Heads*, GROUP Conference.

Neustaedter, C., Judge, T., Hillman, S., Oduor, E., and Pang, C. (2012) Connecting Families through Technology, In *ACM CHI 2012 Workshop on Technologies for Today's Families*. Organized by Jerry Fails, Mona Leigh Guha, Michael Horn, and Sara Isola, 4 pages.

Patent Applications Filed

A SYSTEM AND METHOD FOR CONTEXT-BASED DRIVER BEHAVIOR SCORING.
Disclosure YOR820152218, Docket YOR920160109KE1.

External Presentation and Talks

April 2019 **Presentation of IBMs project progress to KRAPID bi-annual partners meeting**, Isiolo, Kenya

October 2018 **Presentation on Using big data to inform decisions that support farmers in emerging markets**, at the CGIAR Platform for Big Data in Agriculture Convention at the UN, Nairobi, Kenya

May 2018 **Application of HCI Research in ICTD Settings Lecture, Catholic University of East Africa**, Nairobi, Kenya

May 2018 **Application of HCI Research in ICTD Settings Lecture, Catholic University of East Africa**, Nairobi, Kenya

May 2018 **Application of HCI Research in ICTD Settings Lecture, Catholic University of East Africa**, Nairobi, Kenya

March 2017 **IBM Design Thinking Workshop**, Safaricom Academy, Nairobi, Kenya

Dec 2016 **Technology use in the management of Water Resources in Arid and Semi-Arid Northern Kenya**, IBM Research Yorktown Heights, NY, USA.

Sept 2015 **Safaricom AppWiz Competition**, Strathmore University, Nairobi, Kenya

May 2013 **Design of Communication Technology**, Microsoft Research Bangalore, India

Service: Conference Organization and Review Committees

2017 - 2019 Associate Chair, ACM Conference on Computer-Human Interaction (CHI)

2019 - 2017 Associate Chair, ACM Conference on Designing Interactive Systems (DIS)

2012 - 2017 Reviewer, ACM Conference on Computer-Human Interaction (CHI)

2012 - 2017 Reviewer, ACM Conference on Designing Interactive Systems (DIS)

2012 - 2017 Reviewer, ACM Conf. on Computer Supported Collaborative Work (CSCW)

2016 - 2017 Demo Co-Chair & Reviewer, African conference for HCI (AfriCHI)

2015 - 2017 Reviewer, Intl Conf. on Information & Comm. Technologies and Dev. (ICTD)

Selected Awards and Scholarships

2014 Simon Fraser University, Graduate International Travel Awards (GIRTA) \$6250

2014 Simon Fraser University, President's PhD Scholarship \$6250, per semester.

2013 Simon Fraser University, Graduate Fellowship funding \$3125, per semester.

- 2012 Simon Fraser University, Graduate Fellowship funding \$6250, per semester.
2011 Simon Fraser University, Graduate Fellowship funding \$6250, per semester.
2010 Chalmers University, Conference attendance funds, per trip.
2003 - 2007 Lee University, Cleveland, TN. Athletic scholarship, \$60,000 for four years.

Organizational Memberships

- 2007 - Present Project Management Institute (PMI)
2011 - Present Association for Computing Machinery (ACM)
2011 - Present Special Interest Group on Human Interaction (SIGCHI), ACM

Referees

Urban Nulden

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