Osei Kofi Tweneboah | Curriculum Vitae

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Education

University of Texas at El Paso	**El Paso, TX**
PhD Computational Science	August/ 2015- Date
Advisor: Dr. Maria C. Mariani	

University of Texas at El Paso	**El Paso, TX**
M.S. Mathematics	August/ 2013- August/2015
Advisor: Dr. Maria C. Mariani	

Kwame Nkrumah University of Science and Technology	**Kumasi, Ghana**
B.S. Mathematics (First Class Honors)	August/ 2008- May/ 2012
Advisor: Dr. Emmanuel Osei-Frimpong	

Professional Experience

University of Texas at El Paso　　　　　　　　　　　　　　　　**El Paso, TX**

- *Computational Science Program*　　　　　　September/ 2015 – Present
  (PhD Teaching Assistant)

University of Texas at El Paso　　　　　　　　　　　　　　　　**El Paso, TX**

- *Department of Mathematical Sciences*　　　　　*Summer* 2015 – Present
  (Mathematics Instructor)

University of Texas at El Paso　　　　　　　　　　　　　　　　**El Paso, TX**

- *Department of Mathematical Sciences*　　　September/ 2013 – August/ 2015
  (Masters Teaching Assistant)

University of Texas at El Paso　　　　　　　　　　　　　　　　**El Paso, TX**

- *Department of Teacher Education*　　　　　　June/ 2014 - July/ 2014
  (Research Assistant)

Kwame Nkrumah University of Science and Technology　　　　**Kumasi, Ghana**

- *Department of Mathematics*　　　　　　　　August/ 2012 – July/ 2013
  (Research and Teaching Assistant)

Publications

Papers in Peer-Reviewed Journals

- Maria C. Mariani, Al Masum Bhuiyan and **Osei K. Tweneboah**, "Estimation of stochastic volatility by using Ornstein–Uhlenbeck type models", Physica A: Statistical Mechanics and its Applications, Volume 491, Issue 1, Pages 167-176, 2018.

- Maria C. Mariani, Hector Gonzalez-Huizar, Md Al Masum Bhuiyan and **Osei K. Tweneboah**, "Forecasting the Volatility of Geophysical Time Series with Stochastic Volatility Models", World Academy of Science, Engineering and Technology, Volume 11, No:10, Pages 393-399, 2017.

- Maria C. Mariani, Hector Gonzalez-Huizar, Md Al Masum Bhuiyan and **Osei K. Tweneboah**, "Using Dynamic Fourier Analysis to Discriminate Between Seismic Signals from Natural Earthquakes and Mining Explosions", AIMS Geosciences, 3(3), Pages 438-449, 2017.

- Maria P. Beccar-Varela, Maria C. Mariani, **Osei K. Tweneboah** and Ionut Florescu, "Analysis of the Lehman Brothers collapse and the Flash Crash event by applying wavelets methodologies", Physica A: Statistical Mechanics and its Applications, Volume 474, pp 162-171, 2017.

- Maria P. Beccar-Varela, Hector Gonzalez-Huizar, Maria C. Mariani, and **Osei K. Tweneboah** "Use of wavelets techniques to discriminate between explosions and natural earthquakes", Physica A: Statistical Mechanics and its Applications, 457, pp 42-51, 2016.

- Maria P. Beccar-Varela, Hector Gonzalez-Huizar, Maria C. Mariani, Laura F. Serpa and **Osei K. Tweneboah**, "Levy Flight and Long-range Correlation Analysis of Earthquake magnitudes in Chile", Pure and Applied Geophysics, Volume 173, Issue 7, pp 2257-2266, 2016.

- Maria C. Mariani, **Osei K. Tweneboah**, Hector Gonzalez-Huizar and Laura F. Serpa "Stochastic Differential Equation of Earthquakes Series ", Pure and Applied Geophysics, Volume 173, Issue 7, pp 2357–2364, 2016.

- Maria C. Mariani and **Osei K. Tweneboah**, "Stochastic differential equations applied to the study of geophysical and financial time series", Physica A: Statistical Mechanics and its Applications, Volume 443, pp 170–178, 2016.

Papers submitted to Peer-Reviewed Journals

- Maria C. Mariani, **Osei K. Tweneboah**, Miguel A. Valles and Pavel Bezdek, "Complex Gleason Measures and the Nemytsky Operator", (Submitted for publication-Aug, 2017).

Posters and Presentations

1. Bhuiyan, Md Al Masum, Osei K. Tweneboah and Maria C. Mariani, "Forecasting the Volatility of Geophysical Time Series with Stochastic Volatility Models", 19th International Conference on Statistics, Mathematics and Econometrics, New York, October 5-6, 2017.
2. Osei K. Tweneboah and Maria C. Mariani, "Analysis of high frequency financial time series by using Ornstein-Uhlenbeck type models", West Texas Applied Math Graduate Minisymposium", Texas Tech University, Lubbock, TX, April 28, 2017.
3. Osei K. Tweneboah and Maria C. Mariani, "Stochastic models applied to high frequency financial time series", The 20th Joint NMSU/UTEP Workshop on Mathematics, Computer Science, and Computational Sciences, NMSU, Las Cruces, NM, May 8, 2017.
4. Bhuiyan, Md Al Masum, Osei K. Tweneboah and Maria C. Mariani, "A comprehensive analysis of time series forecasting using volatility models", The 20th Joint NMSU/UTEP Workshop on Mathematics, Computer Science, and Computational Sciences, NMSU, Las Cruces, NM, May 8, 2017.
5. Tweneboah, O. K., Mariani, M. C., and Florescu, I., 7th Annual Stevens Conference on High Frequency Finance and Analytics (HF2016), "Analysis of the Bear Stearns collapse using a stochastic differential equation," Stevens Institute of Technology, Hoboken, NJ, USA. (November 2016).
6. Bhuiyan, Md Al Masum, Mariani, M.C., Tweneboah, O.K. and Hector-Huizar, G., "Volatility forecasting of financial and geophysical time series using GARCH and Stochastic volatility model, Stevens Institute of Technology, Hoboken, NJ, USA. (November 2016).
7. Beccar-Varela, M., Mariani, M. C., Florescu, I. and Tweneboah, O. K., 7th Annual Stevens Conference on High Frequency Finance and Analytics (HF2016), "Wavelets analysis and Levy models applied to the study of high frequency data arising in finance and geophysics " Stevens Institute of Technology, Hoboken, NJ, USA. (November 2016).
8. Hector Gonzalez-Huizar, Maria Mariani, Laura Serpa, Maria Beccar-Varela, Osei K. Tweneboah, "Investigation of Large Earthquakes as Critical Phase Transitions", AGU Fall meeting, San Francisco, December 14-18, 2015.
9. Osei K. Tweneboah, Maria C. Mariani, "Stochastic processes applied to the study of financial time series", the 17th Joint UTEP/NMSU Workshop on Mathematics, Computer Science, and Computational Sciences, UTEP, El Paso, TX, November 7, 2015.
10. Md Al Masum Bhuiyan, Maria C. Mariani, Osei K. Tweneboah and Hector Gonzalez-Huizar, "Discrimination of seismic signals arising in earthquakes and mining explosions by using Fourier analysis", the 17th Joint UTEP/NMSU Workshop on Mathematics, Computer Science, and Computational Sciences, UTEP, El Paso, TX, November 7, 2015.
11. M. Beccar Varela, H. Gonzalez, I. Florescu, M.C. Mariani and Osei K. Tweneboah, "Levy models, Long memory effects and Wavelet analysis applied to the study of high frequency data arising in finance and geophysics", The 6th

Annual Stevens Conference on High Frequency Finance and Analytics, Stevens Institute of Technology, Hoboken, NJ, October 29th-31st, 2015.

12. Osei K. Tweneboah, Maria C. Mariani, "Stochastic differential equations applied to the study of geophysical and financial time series", The 6th Annual Stevens Conference on High Frequency Finance and Analytics, Stevens Institute of Technology, Hoboken, NJ, October 29th-31st, 2015.

13. Osei K. Tweneboah, Maria C. Mariani, "Stochastic Differential Equations Applied to Geophysics", Spring Western Sectional Meeting, University of Nevada, Las Vegas, Las Vegas, NV, April 18-19, 2015.

14. Osei K. Tweneboah, Maria C. Mariani, "Ornstein- Uhlenbeck Superposed Models applied to Modeling Seismic Data", the 2nd Annual DYNAMICA EXPO, El Paso Convention Center, El Paso, TX, November 14 and 15, 2014.

15. Osei K. Tweneboah, Maria C. Mariani, "Ornstein- Uhlenbeck Superposed Models applied to Modeling Seismic Data and other High Frequency Data", the 15th Joint UTEP/NMSU Workshop on Mathematics, Computer Science, and Computational Sciences, UTEP, El Paso, TX, November 1, 2014.

Intellectual Property

Patents

1. Use of wavelets techniques to discriminate between explosions and natural earthquakes, (Provisional 2015).

Awards

1. Research Award, Department of Mathematical Sciences, UTEP, August, 2017.
2. Travel Grant, Department of Mathematical Sciences, UTEP, Amount: USD 800, April, 2017.
3. UTEP Graduate School Travel Grant, Amount: USD 850, October, 2016.
4. Travel Grant, Department of Mathematical Sciences, UTEP, Amount: USD 500, October, 2016.
5. Research Award, Department of Mathematical Sciences, UTEP, October, 2016.
6. Research Award, Department of Mathematical Sciences, UTEP, January, 2016.
7. Travel Grant, Department of Mathematical Sciences, UTEP, October, 2015.
8. Travel Grant, Department of Computational Sciences, UTEP, Amount: USD 300, October, 2015.
9. Research Award, Department of Mathematical Sciences, UTEP, October, 2015.
10. Dodson Travel Grant, College of Science, UTEP, Amount: USD 300, September, 2015.
11. Participant Support Research Award, Department of Mathematical Sciences, UTEP, June, 2015.
12. Academic and Research Excellence Graduate Student Mathematics Award for outstanding graduate student in Mathematics, Department of Mathematical Sciences, UTEP, May, 2015.
13. Travel Grant, Department of Mathematical Sciences, UTEP, April, 2015.
14. First Class Honors, Kwame Nkrumah University of Science and Technology, August, 2012.

Computer Skills and Competences

Competent with C/C++, FORTRAN, Python, MPI, OpenMP, Matlab, Maxima, R, SPSS and Latex.

Organizational Skills and Competences

Leadership Ability:

- I am the President and Co-founder of the African Students Organization at the University of Texas at El Paso, which is a socio-cultural organization that strives to foster a culturally diverse environment and increase awareness of the diverse African cultures, September 2016- Present.

- I was the Chairman of the Electoral Commission of the Association of Mathematics Students', KNUST, which ensured proper recruiting and vetting of nominee and organised a free and fair election, April, 2011.

Community Service:

- I served as a volunteer Judge at a debate tournament hosted by Eastwood High School speech and debate team, December, 2016.

- The Newswise and Science Daily published articles about my joint research with faculty of the Department of Mathematical Sciences and Geological Sciences about successfully tying a new mathematical modeling process to the study of earthquakes. The research help analyzes the effect that earthquakes from long ago have on present and future quakes, August 2016.

- I have been a lead facilitator of propagating the learning of mathematics at various workshops organized by the Association of Mathematics Students', KNUST, August 2008 - May 2012.

Professional Memberships

- President, African Students Organization, UTEP   2016-Present
- Member, National Postdoctoral Association   2017- Present
- Member, Society of Industrial and Applied Mathematics   2015- Present
- Member, American Mathematical Society   2013- Present
- Member, National Society of Black Engineers (NBSE)   2013- Present
- Member, SIAM's International and Interdisciplinary Community   2012- Present