

## Ruchira N. Wijesena

### Personal Details

Name	<b>Ruchira Nalinga Wijesena</b>
Address	<b>531/B, Kurunduwatta 1<sup>st</sup> lane, Awariwatta, Wattala, Sri Lanka</b>
Mobile Number	<b>0718 603 702</b>
E-mail Address	<b>WijesenaR@gmail.com</b>
Date of Birth	<b>27 Decerber 1986</b>
Nationality	<b>Sri Lankan</b>

### Education

**BSc.Eng(Hons) in Textile Process & Engineering      2005 - 2010**  
**University Of Moratuwa, Sri Lanka**

- Graduated with Second Class upper with a GPA of 3.52
- Final Year Project: Neural network based intelligent system to objectively evaluate the degree of fabric deformation occur during seam formation. The method use image processing algorithms to extract deformation data and influence of several key parameters were looked at. Mathematical model was developed to explain the deformation phenomena

**Advanced Level, Nalanda College      2003-2005**  
**Colombo, Sri Lanka**

- Combined mathematics      **A**
- Physics      **A**
- Chemistry      **B**

**Ordanary Level, St. Anthony's College      2003-2005**  
**Wattala, Sri Lanka**

- All eight core subjects passed with distinctions

## Extra-curricular Activities

### Positions

- Head prefect of Sri Darmarama Sunday school (2003-2004)
- Head of the debate team of St' Anthony's College (2001-2002)
- Head of the debate team of Sri Darmarama Sunday school (2003-2004)

### Sports

- All Island 2<sup>nd</sup> Runner up in heavy weight Inshin Karate Championship (2001/2002)
- Played for karate team of St Anthony's college, Wattala (2000-2002)
- Played for under 13<sup>th</sup> Cricket team of St Anthony's college, Wattala (1997/1997)
- Played for chess squared of St Anthony's college, Wattala (2000/2001)

## Research Experience

### Research Scientist

**2010 – 2015**

### Senior research scientist

**2015 – 2016**

### Sri Lanka institute of Nanotechnology

- Sri Lanka Institute of Nanotechnology (SLINTEC) is the ambitious research arm of National Nanotechnology Initiative (NNI) of Sri Lanka which was established with the vision of accelerating the technology based development through commercialization of nanotechnology. The institute is the only one of its kind and most highly equipped research institute in the country

### Research projects involved

- Preparation and characterization of chitin and chitosan biopolymers from crab shells and evaluation of antibacterial activity of nanosilver/chitosan treated cotton fabrics (2010-2011)
- Modification of cotton fiber surfaces with photocatalytic nanomaterials to impart self-cleaning ability (2010-2012)
- Energy efficient dyeing with power ultrasound (2010-2011)
- Externally stimuli responsive polyurethane fibers (2011-2012)
- Preparation of chitin nanofibers from crab shells and improved directional moisture transport properties in cotton fabrics with chitin nanofibers (2011)
- Preparation of graphene oxide, graphene from vein graphite (2012)
- IR reflective coatings on glass surfaces with Indium doped Tin Oxide (2012)
- Superhydrophilic Silica coatings on glasses for antifogging finish (2012)
- A chemical catalyst to improve the dyeing efficiency of Nylon fabrics (2012/2013)

- A cost effective method to impart softening property to cotton fabrics (2012/2013)
- New moisture management finish for fabrics (2014/2016)
- UV blocking coating system for bulb coating (2014/2016)
- Hydrophobic coating solution for glass surfaces (2014/2015)
- Hydrophobic coating system for fabrics (2014/2015)
- Durable coating system for ethylene vinyl acetate (2015)
- Preparation of fungicidal nanoparticles for agricultural use (2015)
- Hydrogel formulation for cosmetic applications (2015)

### Analytical instruments used

- Hands on experience with following analytical instruments to operate, analyze and to interpret data
- |                                |                              |                        |
|--------------------------------|------------------------------|------------------------|
| • SEM (Hitachi)                | • AFM (Park AFM)             | • FT-IR(Bruker)        |
| • UV-Vis(Shimadzu)             | • P-XRD(Bruker)              | • TGA (TA inst.)       |
| • DSC (TA inst.)               | • DMA (PerkinElmer)          | • PSA (Marlven)        |
| • AAS                          | • BET (Quantachrome)         | • Tensile (Instron)    |
| • Optical Microscope (Olympus) | • RF Impedence Sp. (Agilant) | • Fluorometer (Horiba) |

### Carrier Objective

I see a purpose in life that goes beyond the pursuit of wealth or satisfying someone else's dreams as an end goal. Conversely, my desire is to make, the power of imagination my reality. I am acutely aware that this is sought after by many but realized by only a few. What motivates me best is to explain why something would work and why something wouldn't. That's the only power that set me above everybody else and that's the only power I'm compelled to seek. I'm also greatly confident that my passion and commitment to science will carry me through. This has allowed me to step out of my comfort zone and perform beyond the standards expected of me.

### Publications

1. RUCHIRA N. WIJESENA, NADEEKA TISSERA, RANGANA PERERA, K.M. NALIN DE SILVA, Side selective surface modification of chitin nanofibers on anionically modified cotton fabrics, *Carbohydrate Polymers*, 109 (2014): 56-63,
2. RUCHIRA N. WIJESENA, NADEEKA TISSERA, YASUN KARUNARATHNE, K.M. NALIN DE SILVA, A method for top down preparation of chitosan nanoparticles and nanofibers, *Carbohydrate Polymers*, 117 (2015): 731-738

3. RUCHIRA N WIJESENA, NADEEKA D. TISSERA, RANGANA PERERA, KM NALIN DE SILVA, AND GEHAN AJ AMARATUNGA. "Slightly carbomethylated cotton supported TiO<sub>2</sub> nanoparticles as self-cleaning fabrics." *Journal of Molecular Catalysis A: Chemical* 398 (2015): 107-114.
4. WIJESENA, RUCHIRA N., NADEEKA D. TISSERA, AND KM NALIN DE SILVA. "Coloration of cotton fibers using nano chitosan." *Carbohydrate polymers* 134 (2015): 182-189.
5. WIJESENA, R., PERERA, R., TISSERA, N., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Effect of silver nanoparticles on fluorescence behavior of graphene oxide. *International Conference on Advanced Materials (ICAMSE-12)*. Colombo, Sri Lanka.
6. TISSERA, NADEEKA D., RUCHIRA N. WIJESENA, AND KM NALIN DE SILVA. "Ultrasound energy to accelerate dye uptake and dye-fiber interaction of reactive dye on knitted cotton fabric at low temperatures." *Ultrasonics Sonochemistry* 29 (2016): 270-278.
7. TISSERA, NADEEKA D., RUCHIRA N. WIJESENA, J. RANGANA PERERA, KM NALIN DE SILVA, AND GEHAN AJ AMARATUNGE. "Hydrophobic cotton textile surfaces using an amphiphilic graphene oxide (GO) coating." *Applied Surface Science* 324 (2015): 455-463.
8. WIJESENA, R., TISSERA, N., PERERA, R., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Modification of cotton fiber surfaces with  $\alpha$ -chitin nanofibers. *International Conference on Advanced Materials (ICAMSE-12)*. Colombo, Sri Lanka.
9. WIJESENA, R., PERERA, R., TISSERA, N., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Preparation and characterization of Indium doped Tin oxide coated glasses and its IR transmission control property. *First National Nanotechnology Conference*. Colombo, Sri Lanka.
10. WIJESENA, R., PERERA, R., TISSERA, N. & KARUNANAYAKA, L. (2012) Chitosan/ Montmorillonite composite beads for pH triggered release of silver nanoparticles. *International Symposium on Polymer Science and Technology (IIUPST 2012)*. Sri Jayawardanapura, Sri Lanka.
11. WIJESENA, R., TISSERA, N., PERERA, R. & KARUNANAYAKA, L. (2012) Preparation and characterization of  $\alpha$ -Chitin nanofibers from crab shells of *Portunuspelagicus* (blue swimmer crab). *International Symposium on Polymer Science and Technology (IIUPST 2012)*. Sri Jayawardanapura, Sri Lanka.
12. WIJESENA, R., TISSERA, N., PERERA, R., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Preparation and characterization of superhydrophilic silica coatings and their application as antifogging glass. *First National Nanotechnology Conference*. Colombo, Sri Lanka.
13. WIJESENA, R., TISSERA, N., PERERA, R. & KARUNANAYAKA, L. (2012) Hydrodynamically and mechanically assisted wet spinning of elastomeric polyurethane filaments. *International Symposium on Polymer Science and Technology (IIUPST 2012)*. Sri Jayawardanapura, Sri Lanka.

14. NISANSALA, P. H., WIJESENA, R. & M. KONESWARAN (2012) Development of Superhydrophobic Cotton Fabric Using Nanoparticles *International Conference on Advanced Materials 2012 (ICAMSE-12)*. Colombo, Sri Lanka.
15. PERERA, R., WIJESENA, R., TISSERA, N., KARUNANAYAKE, L. & ALWIS, A. D. (2012) Synthesis and characterization of Ag@TiO<sub>2</sub> core shell nano particles and it's UV induced electron hole separation. *International Conference on Advanced Materials, Science and Engineering 2012 (ICAMSE-12)*. Colombo, Sri Lanka.
16. TISSERA, N., WIJESENA, R., PERERA, R., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Evolution of Carbon Nano Fibers From Poly Acrylo Nitrile (PAN) Nano Fibers. *International Conference on Advanced Materials 2012 (ICAMSE-12)* Colombo, Sri Lanka.
17. NISANSALA, P. H., WIJESENA, R. & KONESWARAN, M. (2012) Development of Photocatalytic Active Construction and Building Materials Using ZnO Nanorods. *International Conference on Sustainable Built Environment -2012*. Kandy, Sri Lanka - Paper Accepted.
18. TISSERA, N., WIJESENA, R., PERERA, R., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Preparation and comparison of polyurethane nanocomposites. *First National Nanotechnology Conference*. Colombo, Sri Lanka.
19. PERERA, R., WIJESENA, R., TISSERA, N. & KARUNANAYAKE, L. (2012) Enhancement of photocatalytic activity of nano TiO<sub>2</sub> by doping nitrogen and its application as a stain removing dispersion. *International Symposium on Polymer Science and Technology (IIUPST 2012)*. Sri Jayawardanapura, Colombo - Paper Accepted.
20. PERERA, R., TISSERA, N., WIJESENA, R., KARUNANAYAKE, L. & ALWIS, A. D. (2012) UV blocking fabrics with nano Titanium dioxide. *First National Nanotechnology Conference - 2012*. Colombo, Sri Lanka.
21. TISSERA, N., PERERA, R., WIJESENA, R., KARUNANAYAKA, L. & ALWIS, A. D. (2012) Nano TiO<sub>2</sub> embedded nanofibers spun from electrospinning technology to produce stain removing and UV blocking. *International Symposium on Polymer Science and Technology (IIUPST 2012)*. Sri Jayawardanapura, Sri Lanka.

## Patents

1. PERERA, R., TISSERA, N., WIJESENA, R., KARUNANAYAKE, L. & ALWIS, A. D. (2011) Composition for stain and odor removal from bio polymeric fabrics and a process thereof. Sri Lanka, Application No : 16366
2. WIJESENA, R., PERERA, R., TISSERA, N., NALIN.D.SILVA (2013), Moisture management fabric (US PTO application No: 14/024906)
3. TISSERA, N., WIJESENA, R., PERERA, R., NALIN.D.SILVA (2013), Hydrophobic surface treatment compositions comprising Titanium(US PTO application No: 14/024879)

## References

---

***Prof. Nalin De Silva (Supervisor)***

B.Sc(Colombo), Ph.D (Cambridge)  
Sri Lanka Institute of Nanotechnology  
Lot 14, Zone 1,  
Biyagama EPZ,  
Walgama, Malwana,  
Sri Lanka  
Email : [nalind@slintec.lk](mailto:nalind@slintec.lk)

***Prof. Ajith De Alwis (Supervisor)***

B.Sc.Eng(Moratuwa), Ph.D.(Cambridge)  
Department of Chemical & Process  
Engineering,  
University Of Moratuwa,  
Moratuwa,  
Sri Lanka  
Email : [ajith@uom.lk](mailto:ajith@uom.lk)