

## Curriculum Vitae

Last updated October 2021

# ELENA KOSAREVA

Ph.D. Candidate

Department of Human Ecology, University of Alberta  
320 Human Ecology Building, University of Alberta, T6G 2N1, Edmonton AB, Canada  
kosareva@ualberta.ca | [LinkedIn](#)

### Academic training **Ph.D. Candidate in Human Ecology, Textile Science**

**Sept 2018 -** **University of Alberta**

**ongoing** Edmonton, AB, Canada

Thesis working title: Development of wildland firefighters protective clothing systems with improved thermal insulation properties

Supervisor: Dr. Jane Batcheller

**Sept 2010 - M.Sc. in Engineering & Technology of Garments**

**Jul 2012 St. Petersburg State University of Industrial Technologies and Design**

St. Petersburg, Russia

Thesis Titled: Development of school uniform with flexible armhole-sleeve joint and soil repellent finishing of fabric

Supervisors: Prof. Vera Kiseleva, Dr. Tamara Diankova

**Sept 2005 - Specialist Degree<sup>1</sup> in Apparel Science (*apparel pattern making*)**

**Jun 2010 St. Petersburg State University of Industrial Technologies and Design**

St. Petersburg, Russia

Qualification: Engineer in Pattern Designing and Modeling of Garments and Sewn Products

### Research experience **Graduate Research Assistant**

**Jan 2021 - For the Department of National Defence**

**Aug 2021 Interdisciplinary Research at the University of Alberta**

Edmonton, AB, Canada

Program: Innovation for Defence Excellence and Security (IDEaS) in the fight against COVID-19

Research focus: Rechargeable, self-decontaminating personal protective equipment and operational clothing and equipment for personnel responding to events involving biological hazards

Responsibilities included:

- Assessment of the effect of self-decontaminating treatment effect on military fabrics on their properties
- Performance of standard test methods for the assessment of textile material performance
- Technical report preparation including data summary tables, graphs, charts, statistical analysis and test methods principle with the apparatus description

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<sup>1</sup> Specialist degree in Russia is equivalent to a Bachelor of Science & Postgraduate Diploma in Canada. Information is based on the educational credential assessment report from the University of Toronto in September 2021.

**Nov 2020 - Graduate Research Assistant**

**Mar 2021 Department of Human Ecology, University of Alberta**

Edmonton, AB, Canada

Research focus: Investigation of the role of fibre, yarn, and fabric structure on the interactions between fabric and human skin

Responsibilities included:

- Contribution to the writing of academic literature review (i.e. providing the content; writing several sections)
- Searching of the scientific articles, book chapters, other papers and publications related to the area of textile properties (i.e., investigation of the relationship between the structures of knitted fabrics, yarns, and fibres and interaction behaviour)

**Oct 2020 - Graduate Research Assistant**

**Feb 2021 Interdisciplinary Research at the University of Alberta**

Edmonton, AB, Canada

Project partnership: Alberta Health Services (AHS)

Research focus: Analysis of potential facemask materials for protection against COVID-19 virus.

Responsibilities included:

- Determination of textile material properties following standard test methods (i.e. mass per unit area ASTM D3776/D3776M-20; thickness ASTM D1777-96(2019); fabric count for woven materials ASTM D3775-17e1)
- Identification of yarn and fibre diameter using the biological polarizing microscope and stereo microscope respectively
- Facemasks materials' characterization by performing qualitative analysis of fabric structure and fibre content (optical microscopy and fibre melting point test)
- Performance of air permeability standard testing of textile materials ASTM D737-18
- Technical report preparation including data summary tables, microscope images, test methods principle and apparatus description

*Note. Project has been funded by NSERC, Alliance COVID-19 Grant program.*

**Sept 2019 - Graduate Research Assistant**

**Dec 2019 For Canadian General Standards Board (CGSB)**

**Textile Analysis Service (TAS), University of Alberta**

Edmonton, AB, Canada

Research focus: Study involved the process of updating a textile test method, CAN/CGSB 4.2 No. 58 Dimensional Change in Domestic Laundering of Textiles, specifically comparison of washing machines' performances on shrinkage of different types of fabric.

Responsibilities included statistical analysis of data with performance of:

- Repeated Measures four-way ANOVA overall test with planned pairwise comparison of Follow-up test
- Inter-rater Reliability Analysis

- Jan 2019 - Graduate Research Assistant**  
**Aug 2019 For BioLargo Water Inc.**  
**Department of Human Ecology, University of Alberta**  
Edmonton, AB, Canada  
Research focus: Textile structure and fibre content analysis for water filtration technology with advanced oxidation system (AOS)  
Responsibilities included:
- Performance of standard test methods for textiles, including Breaking strength of fabrics - Strip Method CAN/CGSB-4.2 No. 9.1-M90; The liquid absorbency capacity (LAC) ISO 9073-6: 2000; Air permeability CAN/CGSB-4.2 No. 36-M89
  - Microscopy fibre examination (fibre size measuring due to swelling)
  - Collecting all experimental data
  - Technical report preparation with data analysis, graphs, charts and oral presentation
- Sept 2010 - Graduate Research Assistant**  
**Jun 2012 For the Department of Chemical Technology**  
**St. Petersburg State University of Industrial Technologies and Design**  
St. Petersburg, Russia  
Research focus: Evaluation of soil-repellent finishes impact on polyester and polyamide fabrics  
Responsibilities included:
- Textile specimen preparation (treatment and cutting)
  - Performance of standard test method ISO 13934-1:1999 Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method
  - Collecting and logging experimental data
- Sept 2007 - Undergraduate Research Assistant**  
**Aug 2010 For the Department of Chemical Technology**  
**St. Petersburg State University of Industrial Technologies and Design**  
St. Petersburg, Russia  
Research focus: Analysis of adhesive bond strength of fabric interfacing  
Responsibilities included:
- Performance of standard test method ISO 13934-1:1999 Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method
  - Collecting and logging experimental data
- Sept 2006 - Undergraduate Research Assistant**  
**Aug 2007 For the Department of Physics**  
**St. Petersburg State University of Industrial Technologies and Design**  
St. Petersburg, Russia  
Research focus: Study of the effects of radiotelephone radiation on the human body  
Responsibilities included:
- Contribution to experimental design; measuring the heating of the surface of the human body at the location of the phone using thermocouples
  - Collection and logging experimental data

Jan 2006 - **Undergraduate Research Assistant**  
Aug 2006 **For the Department of Physics**  
**St. Petersburg State University of Industrial Technologies and Design**

St. Petersburg, Russia

Research focus: Investigation of the advantage of a hollow wheel for speed gain compared to a solid

Responsibilities included:

- Calculation and comparison of the moment of inertia of hollow and solid cylinders with the same mass
- Development and construction of the wheel prototypes

**Teaching experience** **Graduate Teaching Assistant**  
**Sept 2018 - present** **Human Ecology Department, University of Alberta**  
Edmonton, AB, Canada

HECOL 270: Application of Textile Science

HECOL 370: Quality Assurance of Textiles and Apparel

Responsibilities included:

- Laboratory equipment demonstration
- Providing the instructions, mentoring during the lab session
- Setting up the classroom and specimen preparation
- Assignments grading

**Scientific reports for industry partners** Dolez, P., Batcheller, J., Harynuk, J., de la Mata, P., Schmidt, S., & Kosareva, E. (2021) *Rechargeable, self-decontaminating Personal Protective Equipment and Operational Clothing and Equipment for personnel responding to events involving biological hazards*. Report prepared for the Department of National defence, Innovation for Defence Excellence and Security (IDEaS).

Kosareva, E., McQueen, R., & Batcheller, J. (2021) *Review of literature on the role of fibre, yarn, and fabric structure on the interactions between fabric and human skin*. Report prepared for a sportswear manufacturer.

Kosareva, E., Dolez, P., & Batcheller, J. (2021) *Characterization of selected facemask materials for protection against COVID-19 virus*. Report prepared for the NSERC Alliance COVID-19 grant program. Project title: High performance homemade masks for protection against COVID-19 virus.

Kosareva, E., McQueen, R., & Batcheller, J. (2019) *Textile structure and fibre content analysis of materials for water filtration technology with advanced oxidation system*. Report prepared for BioLargo Water Inc.

**Publications & conference proceedings** Diankova, T. Yu., Lvov, D.S., & Kosareva, E.S. (2012). Additive effects in the water-repellent finish of polyester and polyamide fibre. *Collection of reports of the All-Russian scientific and technical conference: Current Trends of Information Technologies Development in Textile Science and Practice*, Russia

Kosareva, E. S., (2011). Designing of new generation school uniform: novel solutions of armhole-sleeve joint design and method of application of soil-repellent coating on fabric. *News of young scientists of St. Petersburg State University of Technology and Design*, 202-203

- Publications & conference proceedings**  
*continued*
- Poroshina, E. V., Baskova O. Yu., Kosareva, E. S., & Diankova, T. Yu. (2008). Improvement of adhesive strength of adhesion bonds of fabric interfacing. *Young Scientists for Textile and Consumer Goods Industry Development (Search - 2008): Source Book of Inter-university Scientific and Technical Conference of Students and Postgraduates. Part 1.* (pp. 82-83), Russia
- Baskova O. Yu., Kosareva, E. S., Diankova, T. Yu., & Tsobkalo, E. S. (2008). Analysis of adhesion bond strength of fabric interfacing. *Issues of Economics and Advanced Technologies in Textile, Consumer Goods and Polygraphic Manufacturing Sectors.* (pp. 73), Russia
- Academic conferences oral & poster presentations**
- Kosareva, E. Batcheller, J., & Paskaluk, S. (2021, March 10) *Comparison of bench-scale test methods for measuring heat transmission through wildland firefighters' protective clothing systems* [Poster presentation] Agricultural, Life & Environmental Sciences (ALES) Graduate Virtual Research Symposium, University of Alberta, Edmonton, AB, Canada
- Kosareva, E. Batcheller, J., & Paskaluk, S. (2021, March 29) *Comparison of bench-scale test methods for measuring heat transmission through wildland firefighters' protective clothing systems* [Conference oral presentation] Institute of textile science (ITS) scientific session, Edmonton, AB, Canada
- Kosareva, E. (2012, March 10) *Artistic and constructive solutions in designing raincoats for women* [Poster presentation]. Perspective 2012: VIII International competition of designers' projects, Moscow, Russia
- Kosareva, E. (2011) *Designing of new generation school uniform: novel solutions of armhole-sleeve joint design and method of application of soil-repellent coating on fabric* [Conference oral presentation]. Innovations of the Youth Science 2011: conference of young scientists, St. Petersburg, Russia
- Kosareva, E., & Baskova, O. (2008) *Improvement of adhesive strength of adhesive bonds of fabric interfacing* [Conference oral presentation]. Science Days 2008: scientific and technical conference, St. Petersburg, Russia
- Kosareva, E., Baskova, O., & Shumatbaev, A. (2007) *Study of the effects of radiotelephone radiation on the human body* [Conference oral presentation]. Science days 2007: All-Russian scientific and technical conference of students and postgraduates, St. Petersburg, Russia
- Kosareva, E. (2006) *Investigation of the advantage of a hollow wheel for speed gain compared to a solid: calculation and comparison of the moment of inertia of hollow and solid cylinders with the same mass* [Conference oral presentation]. Science days 2006: All-Russian scientific and technical conference of students and postgraduates, St. Petersburg, Russia
- Intradepartmental oral presentations**  
**Textile science seminars**
- Textile Science Seminars**  
**Human Ecology Department, University of Alberta**  
Edmonton, AB, Canada  
Presentation titles:
- Maintaining air gap in protective clothing systems of wildland firefighters (2021, July)
  - Heat transmission bench-scale test methods under wet and dry fabric conditions of wildland firefighters' protective clothing systems, preliminary findings (2021, February)

- Intradepartmental oral presentations**
- Relationship between the non-standard novel TPP cylindrical test method and other standard bench-scale heat transmission test methods, (2020, November)
- Textile science seminars**  
*continued*
- Comfort concerns in wildland firefighters' protective clothing system, (2020, August)
  - Review of high-performance fabrics and fibres used in wildland firefighters' protective clothing system, (2020, July)
  - Introduction to wildland firefighters' protective clothing research, (2020, June)
  - Repeated measures ANOVA statistical data analysis of washing machines' performance comparison on shrinkage of different types of fabric, (2020, January)
  - Viscose rayon fabrics' structure and performance analysis, (2019, July)
  - Tensile strength testing applied to limited dimension specimens, (2019, March)

**Awards & scholarships** **Betty Crown Graduate Scholarship in Textile and Apparel Science, (September, 2021)**

University of Alberta, FGSR  
Edmonton, AB, Canada

**Alberta Graduate Excellence Scholarship, (January, 2020)**

Government of Alberta/ University of Alberta, FGSR  
Edmonton, AB, Canada

**Academic Excellence Stipend, (2005-2010)**

St. Petersburg State University of Industrial Technologies and Design  
St. Petersburg, Russia

**Selected professional experience** **Apparel patternmaker**  
**Stilnie Neposedi - apparel manufacturer (school uniform)**

May 2013 - St. Petersburg, Russia  
Aug 2015 Responsibilities included:

- Creating garment season collection, and providing technical drawings (Corel DRAW)
- Basic block pattern drafting and its modelling for production of complicated design (Assol CAD software for designing clothes)
- Conducting a proper clothing fitting, and issue necessary adjustments or corrections
- Sewing template development and grading according to the required range of garment sizes (Assol CAD software for designing clothes)
- Provide garment construction techniques and sequence
- Determine the amount of material or fabric required to make a garment

*For individual body shape of customers:*

- Take customers' measurements
- Pattern drafting (manually)
- Arrange fittings to determine whether additional adjustments are needed

Feb 2011 - **Apparel patternmaker**

Jul 2012 **Tavifa - apparel manufacturer (functional clothing & equipment)**

St. Petersburg, Russia

Responsibilities included:

- Sewing product technical sketches
- Basic block pattern drafting and its modelling according to the needed garment design
- Pattern drafting of bags, backpacks, suitcases, and sport/military equipment with complicated forms
- Sewing templates development
- Pattern grading according to the required range of garment sizes
- Tailoring of the prototype
- Fabric selection and calculation of consumption
- Providing advice on garment construction techniques and sequence

**Proficient computer skills** Microsoft office programs: Word, Excel, PowerPoint  
Research & statistical analysis: Zotero, The Statistical Package for the Social Sciences (SPSS software)  
Program for remote work: TeamViewer  
Garment sketching: Corel Draw, Adobe Illustrator, Adobe Photoshop  
Garment pattern design and grading: AssolCAD, AutoCAD

**Languages** **Russian** mother tongue  
**English** advanced level  
**Chinese** intermediate level

**Professional membership** **The American Association of Textile Chemists and Colorists (AATCC)**  
<https://www.aatcc.org/>  
Research Triangle Park, NC, USA

**Institute of Textile Science**  
<https://www.textilesciences.com/>  
Edmonton, AB, Canada  
Montréal, QC, Canada

**Innovation in Textiles**  
<https://www.innovationintextiles.com/>  
Nantwich, United Kingdom

**Scientific & professional conferences attendance** (2021, June 16-17) *Flammability in textiles and polymers* [Conference online session], American Association of Textile Chemists and Colorists (AATCC), NC, USA  
(2021, March 29-30) *Agricultural, Life & Environmental Sciences (ALES) Graduate Virtual Research Symposium* [Conference online session], University of Alberta, Edmonton, AB, Canada  
(2021, March 10) *PPE for COVID-19 front line workers* [Conference online session] Institute of Textile Science (ITS) scientific session, Edmonton, AB, Canada  
(2020, March 12) *Agricultural, Life & Environmental Sciences (ALES) Graduate Research Symposium* [Conference session], University of Alberta, Edmonton, AB, Canada

- Scientific & professional conferences attendance** (2020, March 3) *Quality methods & IT Influences* [Conference session] Institute of Textile Science (ITS) scientific session, Edmonton, AB, Canada  
*continued* (2019, April 3) *Comfort in textile products* [Conference session] Institute of Textile Science (ITS) scientific session, Edmonton, AB, Canada  
(2018, November 5-6) *Protective clothing systems for safety* [Conference session] Davey seminar, Edmonton, AB, Canada
- Professional webinars attendance** McGarrity, M. (2020, July 9) *Overview of surgical mask and respirator requirements* [Webinar presentation]. American Association of Textile Chemists and Colorists (AATCC), NC, USA  
Scholle, F. (2020, June 30) *Ask a virologist – coronavirus: what we know, what we don't* [Webinar presentation]. Industrial Fabric Association International (IFIA)North Carolina State University, Raleigh, NC, USA  
Buckener, B. (2020, June 23) *Explore humans in space: pressure suits* [Webinar presentation]. National Aeronautics and Space Administration (NASA), Educator Professional Development, Hampton, VA, USA  
Weiss, A. (2020, June 16) *Explore solar system & beyond: NASA's hunt for signs of life in the outer solar system* [Webinar presentation]. National Aeronautics and Space Administration (NASA), Educator Professional Development, Hampton, VA, USA  
Ormond, B., & Mathews, M. (2020, June 9) *Key principles for effective protection with masks and respirators* [Webinar presentation]. Industrial Fabric Association International (IFIA)North Carolina State University, Raleigh, NC, USA  
DenHartog, E., & King, M. K. (2020, June 2) *Classifications and testing requirements for PPE in medical environments and personal use* [Webinar presentation]. Industrial Fabric Association International (IFIA)North Carolina State University, Raleigh, NC, USA  
Sharp, S., & Leonas, K. K. (2020, May 26) *Principles of Air Filtration Materials and Design* [Webinar presentation]. Industrial Fabric Association International (IFIA)North Carolina State University, Raleigh, NC, USA  
Sharp, S. (2020, May 19) *Nonwovens technology in the production of PPE* [Webinar presentation]. Industrial Fabric Association International (IFIA)North Carolina State University, Raleigh, NC, USA