Jana Ehmann (née Žujović)

CONTACT
INFORMATION

EECS Department, Room L357
Northwestern University
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EDUCATION

- **Northwestern University**, Evanston, IL

  Ph.D. in Electrical Engineering   **August 2011**

  - Thesis: "Perceptual Texture Similarity Metrics"
  - Advisor: Professor Thrasyvoulos N. Pappas

  M.Sc. in Electrical Engineering   **December 2008**
  - Thesis: "Structure Similarity Metrics for Texture Analysis and Retrieval"
  - Advisor: Professor Thrasyvoulos N. Pappas

- **University of Belgrade**, Belgrade, Serbia

  Diploma in Electrical Engineering   **June 2006**

  - Thesis: "System for Syntactical Recognition of Printed Numbers"
  - Advisor: Professor Željko Đurović

EMPLOYMENT

Postdoctoral Fellow, Northwestern University, Evanston, IL   **September 2011–present**

- Ongoing research: Texture similarity metrics with emphasis on image coding, perception of color composition of images and similarities of color content in images
- Supervising two graduate and two undergraduate students

Research Assistant, Northwestern University, Evanston, IL   **September 2006–August 2011**

- Texture Analysis: Developed texture similarity metrics, with focus on characteristics of natural textures and human texture perception
- Color Composition of Images: Developed an algorithm for extracting and comparing the color composition of images
- Subjective Image Similarity Tool: Developed a testing procedure for finding similarity clusters in large databases of images
- Painting Classification Based on Genre: Developed image processing tools for feature extraction from images belonging to several artistic genres
- Image Processing for Atomic Force Microscopy (AFM): Developed an algorithm for automated object detection and imaging artifact removal in AFM images

Instructor, Northwestern University, Evanston, IL   **Winter, Spring, Fall 2010**

- Course: Introduction to Electrical Engineering (EECS 202)
- Instructed the Signals and Systems portion of the course

Teaching Assistant, Northwestern University, Evanston, IL   **September 2006–June 2009**

- Introduction to Electrical Engineering (EECS 202)
- Fundamentals of Circuits (EECS 221)
- Introduction to Linear Systems (EECS 360)
- Digital Signal Processing (EECS 359)

Intern, DOCOMO USA Labs, Palo Alto, CA   **Summer 2008, Summer 2009**

- Supervisor: Dr. Onur Guleryuz
- Research: Pattern representation and compression with overcomplete dictionaries

PROGRAMMING   C/C++, Matlab, Linux shell scripting

INVITED TALKS

1. "Perceptual Texture Similarity," Google Scholars Retreat, San Francisco, CA, June 2010.

2. "Ljudski Vizuelni Sistem i Digitalna Obrada Signala (Human Visual System and Digital Signal Processing)," Fakultet Informacionih Tehnologija (Faculty of Information Technology), Belgrade, Serbia, December 2009.

- **Publications in Refereed Journals**

  1. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, R. van Egmond, H. de Ridder, "Effective and Efficient Subjective Testing of Texture Similarity Metrics," *submitted to IEEE Transactions on Image Processing.*

  2. T. N. Pappas, D. L. Neuhoff, H. de Ridder, **J. Zujovic**, "Image Analysis: Renewed Focus on Texture," *submitted to Proceedings of the IEEE.*

  3. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, "Structural Texture Similarity Metrics for Image Analysis and Retrieval," *submitted to IEEE Transactions on Image Processing.*

- **Publications in Refereed Conference Proceedings**

  1. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, R. van Egmond, H. de Ridder, "Subjective and Objective Texture Similarity for Image Compression," in *Proceedings of 37th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2012)*, Kyoto, Japan, March 25–30, 2012, pp. 1369–1372.

  2. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, R. van Egmond, H. de Ridder, "A New Subjective Procedure for Evaluation and Development of Texture Similarity Metrics," in *Proceedings of 10th IEEE Image, Video, and Multidimensional Signal Processing Workshop (IVMSP 2011)*, Ithaca, NY, USA, June 16–17, 2011, pp. 123–128.

  3. T. N. Pappas, **J. Zujovic**, D. L. Neuhoff, "Image Analysis and Compression: Renewed Focus on Texture," in *Visual Information Processing and Communication, A. Said and O. G. Guleryuz, eds., Proceedings of SPIE 7543*, San Jose, CA, USA, January 19–21, 2010, pp. 75430N–1–12. **Invited keynote address**

  4. **J. Zujovic**, O. Guleryuz, "Complexity Regularized Pattern Matching," in *Proceedings of 16th IEEE International Conference on Image Processing (ICIP 2009)*, Cairo, Egypt, November 9–11, 2009, pp. 1889–1892.

  5. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, "Structural Similarity Metrics for Texture Analysis and Retrieval," in *Proceedings of 16th IEEE International Conference on Image Processing (ICIP 2009)*, Cairo, Egypt, November 9–11, 2009, pp. 2225–2228.

  6. **J. Zujovic**, T. N. Pappas, D. L. Neuhoff, "Perceptual Similarity Metrics for Retrieval of Natural Textures," in *Proceedings of IEEE International Workshop on Multimedia Signal Processing, 2009. (MMSP 2009)*, Rio de Janeiro, Brazil, October 5–7, 2009, pp. 1–5.

  7. **J. Zujovic**, L. Gandy, S. Friedman, B. Pardo, T. N. Pappas, "Classifying Paintings by Artistic Genre: An Analysis of Features & Classifiers," in *Proceedings of IEEE International Workshop on Multimedia Signal Processing, 2009. (MMSP 2009)*, Rio de Janeiro, Brazil, October 5–7, 2009, pp. 1–5.

  8. S. A. Tsaftaris, **J. Zujovic**, A. K. Katsaggelos, "Automated Line Flattening of Atomic Force Microscopy Images," in *Proceedings of 15th IEEE International Conference on Image Processing (ICIP 2008)*, San Diego, CA, USA, October 12–15, 2008, pp. 2968–2971.

  9. S. A. Tsaftaris, **J. Zujovic**, A. K. Katsaggelos, "Restoration of the Cantilever Bowing Distortion in Atomic Force Microscopy Images," in *Proceedings of European Signal Processing Conference (EUSIPCO 2008)*, Lausanne, Switzerland, August 25–29, 2008.

- **Patents**

  1. O. Guleryuz, **J. Zujovic**, "Complexity Regularized Pattern Representation, Search, and Compression," *US Patent Application 12/566557*, September 24, 2009.

Royal E. Cabell Terminal Year Fellowship, Northwestern University	2010–2011
Google Anita Borg Memorial Scholarship, finalist	2010
Best Teaching Assistant, Northwestern University	2008
Murphy Fellowship, Northwestern University	2007
Ministry of Education Stipend, Ministry of Education, Serbia	2003–2006

Reviewing
services

- IEEE Transactions on Image Processing
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Information Technology in Biomedicine
- IEEE Journal of Selected Topics in Signal Processing
- IEEE International Conference on Image Processing (ICIP)
- ACM Computing Surveys
- SPIE Journal of Electronic Imaging
- Springer Signal, Image and Video Processing

Referees   *Available by request.*