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Employment

Senior Scientist

Artificial Intelligence and Human Interfaces
Paris Lodron University of Salzburg
Salzburg, Austria
1 Mar 2020 → present

Research outputs

Advanced Image Quality Assessment for Hand- and Finger-Vein Biometrics

Kirchgasser, S., Kauba, C., Wimmer, G. & Uhl, A., 2025, In: IET Biometrics.

Extension and Further Evaluation of the PLUS Multi-Sensor and Longitudinal Fingerprint Dataset

Kauba, C., Kirchgasser, S. & Uhl, A., 12 Apr 2024, *2024 12th International Workshop on Biometrics and Forensics (IWBF)*. IEEE, p. 1-6 6 p. 10592871

A Comparative Study of Cross-Device Finger Vein Recognition Using Classical and Deep Learning Approaches

Arican, T., Veldhuis, R., Spreeuwiers, L., Bergeron, L., Busch, C., Jalilian, E., Kauba, C., Kirchgasser, S., Marcel, S., Prommegger, B., Raja, K., Ramachandra, R. & Uhl, A., 2024, In: IET Biometrics. 2024, 3236602.

Limiting Factors in Smartphone-Based Cross-Sensor Microstructure Material Classification

Schuiki, J., Kauba, C., Hofbauer, H. & Uhl, A., 2024, p. 33-47. 15 p.

On the Influence of Texture Strength and Camera Signal on Micro-Texture Surface Classification

Schuiki, J., Kauba, C., Hofbauer, H. & Uhl, A., 2024, p. 1-6.

On the Feasibility of Post-Mortem Hand-Based Vascular Biometric Recognition

Kirchgasser, S., Kauba, C., Prommegger, B., Monticelli, F. & Uhl, A., 28 Jun 2023, *IH and MMSec 2023 - Proceedings of the 2023 ACM Workshop on Information Hiding and Multimedia Security*. Association for Computing Machinery, Inc, p. 121-126 6 p. (IH and MMSec 2023 - Proceedings of the 2023 ACM Workshop on Information Hiding and Multimedia Security).

Cross-Sensor Micro-Texture Material Classification and Smartphone Acquisition do not go well together

Schuiki, J., Kauba, C., Hofbauer, H. & Uhl, A., 2023, p. 1-6.

Three-Dimensional Finger Vein Recognition: A Novel Mirror-Based Imaging Device

Kauba, C., Drahanský, M., Nováková, M., Uhl, A. & Rydlo, Š., 23 May 2022, In: Journal of Imaging. 8, 5, 148.

Towards practical cancelable biometrics for finger vein recognition

Kauba, C., Piciucco, E., Maiorana, E., Gomez-Barrero, M., Prommegger, B., Campisi, P. & Uhl, A., Mar 2022, In: Information Sciences. 585, p. 395-417 23 p.

The PLUS Multi-Sensor and Longitudinal Fingerprint Dataset: An Initial Quality and Performance Evaluation

Kirchgasser, S., Kauba, C. & Uhl, A., 1 Jan 2022, In: IEEE Transactions on Biometrics, Behavior, and Identity Science. 4, 1, p. 43-56 14 p.

Assessment of Synthetically Generated Mated Samples from Single Fingerprint Samples Instances

Kirchgasser, S., Kauba, C. & Uhl, A., 10 Dec 2021, *2021 IEEE International Workshop on Information Forensics and Security (WIFS)*. IEEE, p. 1-6 6 p. 9648394

Inverse Biometrics: Generating Vascular Images From Binary Templates

Kauba, C., Kirchgasser, S., Mirjalili, V., Uhl, A. & Ross, A., 1 Oct 2021, In: *IEEE Transactions on Biometrics, Behavior, and Identity Science*. 3, 4, p. 464-478 15 p., 9406956.

Assessment of Sensor Ageing-Impact in Air Travelled Fingerprint Capturing Devices

Kauba, C., Kirchgasser, S., Jochl, R. & Uhl, A., Sept 2021, *BIOSIG 2021 - Proceedings of the 20th International Conference of the Biometrics Special Interest Group*. Bromme, A., Busch, C., Damer, N., Dantcheva, A., Gomez-Barrero, M., Raja, K., Rathgeb, C., Sequeira, A. F. & Uhl, A. (eds.). Institute of Electrical and Electronics Engineers Inc., Vol. 315. (PROCEEDINGS OF THE 20TH INTERNATIONAL CONFERENCE OF THE BIOMETRICS SPECIAL INTEREST GROUP (BIOSIG 2021)).

The PLUS Multi-Sensor and Longitudinal Fingerprint Dataset: An Initial Quality and Performance Evaluation

Kirchgasser, S., Kauba, C. & Uhl, A., 13 Aug 2021, In: *IEEE Transactions on Biometrics, Behavior, and Identity Science*. p. 1-1 1 p.

General Requirements on Synthetic Fingerprint Images for Biometric Authentication and Forensic Investigations

Makrushin, A., Kauba, C., Kirchgasser, S., Seidlitz, S., Kraetzer, C., Uhl, A. & Dittmann, J., 17 Jun 2021, *IH and MMSec 2021 - Proceedings of the 2021 ACM Workshop on Information Hiding and Multimedia Security*. Association for Computing Machinery, Inc, p. 93-104 12 p. (IH and MMSec 2021 - Proceedings of the 2021 ACM Workshop on Information Hiding and Multimedia Security).

Towards using police officers' business smartphones for contactless fingerprint acquisition and enabling fingerprint comparison against contact-based datasets

Kauba, C., Söllinger, D., Kirchgasser, S., Weissenfeld, A., Fernández Domínguez, G., Strobl, B. & Uhl, A., 1 Apr 2021, In: *Sensors*. 21, 7, 2248.

PROTECT: Pervasive and useR fOCused biomeTRics bordEr projeCT – a case study

Galdi, C., Boyle, J., Chen, L., Chiesa, V., Debiasi, L., Dugelay, J.-L., Ferryman, J., Grudzień, A., Kauba, C., Kirchgasser, S., Kowalski, M., Linortner, M., Maik, P., Michoń, K., Patino, L., Prommegger, B., Sequeira, A. F., Szklarski, Ł. & Uhl, A., 1 Nov 2020, In: *IET Biometrics*. 9, 6, p. 297-308 12 p.

Document scanners for minutiae-based palmprint recognition: a feasibility study

Aguado-martínez, M., Hernández-palancar, J., Castillo-rosado, K., Cupull-gómez, R., Kauba, C., Kirchgasser, S. & Uhl, A., 27 Oct 2020, In: *Pattern Analysis and Applications*.

Finger Vein Template Protection Based on Alignment-Robust Feature Description and Index-of-Maximum Hashing

Kirchgasser, S., Kauba, C., Lai, Y.-L., Zhe, J. & Uhl, A., Oct 2020, In: *IEEE Transactions on Biometrics, Behavior, and Identity Science*. 2, 4, p. 337-349 13 p.

Inverse biometrics: Reconstructing grayscale finger vein images from binary features

Kauba, C., Kirchgasser, S., Mirjalili, V., Uhl, A. & Ross, A., 28 Sept 2020, *IJCB 2020 - IEEE/IAPR International Joint Conference on Biometrics*. Institute of Electrical and Electronics Engineers Inc., 9304866. (IJCB 2020 - IEEE/IAPR International Joint Conference on Biometrics).

An Available Open-Source Vein Recognition Framework

Kauba, C. & Uhl, A., 1 Jan 2020, *HANDBOOK OF VASCULAR BIOMETRICS*. Springer Nature, p. 113-142 30 p. (Advances in Computer Vision and Pattern Recognition).

Cancellable Biometrics for Finger Vein Recognition—Application in the Feature Domain

Kirchgasser, S., Kauba, C. & Uhl, A., 1 Jan 2020, *HANDBOOK OF VASCULAR BIOMETRICS*. Springer Nature, p. 481-506 26 p. (Advances in Computer Vision and Pattern Recognition).

Different Views on the Finger—Score-Level Fusion in Multi-Perspective Finger Vein Recognition

Prommegger, B., Kauba, C. & Uhl, A., 1 Jan 2020, *HANDBOOK OF VASCULAR BIOMETRICS*. Springer Verlag, p. 261-305 45 p. (Advances in Computer Vision and Pattern Recognition).

OpenVein—An Open-Source Modular Multipurpose Finger Vein Scanner Design

Kauba, C., Prommegger, B. & Uhl, A., 1 Jan 2020, *HANDBOOK OF VASCULAR BIOMETRICS*. Springer Verlag, p. 77-111 35 p. (Advances in Computer Vision and Pattern Recognition).

Towards Understanding Acquisition Conditions Influencing Finger Vein Recognition

Kirchgasser, S., Kauba, C. & Uhl, A., 1 Jan 2020, *HANDBOOK OF VASCULAR BIOMETRICS*. Springer Nature, p. 179-199 21 p. (Advances in Computer Vision and Pattern Recognition).

Inverse Biometrics: Reconstructing Grayscale Finger Vein Images from Binary Features

Kauba, C., Kirchgasser, S., Mirjalili, V., Ross, A. & Uhl, A., 2020, *Proceedings of the IAPR/IEEE International Joint Conference on Biometrics (IJC2020)*. Houston, Texas, USA, p. 1-8 8 p.

Presentation Attacks and Detection in Finger- and Hand-Vein Recognition

Debiasi, L., Kauba, C., Hofbauer, H., Prommegger, B. & Uhl, A., 2020, *Proceedings of the Joint Austrian Computer Vision and Robotics Workshop (ACVRW'20)*. Graz, Austria, p. 65-70 6 p.

Combined fully contactless finger and hand vein capturing device with a corresponding dataset

Kauba, C., Prommegger, B. & Uhl, A., 17 Nov 2019, In: *Sensors*. 19, 22, 5014.

On the Extent of Longitudinal Finger Rotation in Publicly Available Finger Vein Data Sets

Prommegger, B., Kauba, C. & Uhl, A., 4 Jun 2019, *Proceedings of the 12th IAPR/IEEE International Conference on Biometrics (ICB'19)*. Crete, Greece, p. 1-8 8 p.

Longitudinal Finger Rotation - Deformation Detection and Correction

Prommegger, B., Kauba, C., Linortner, M. & Uhl, A., 1 Apr 2019, In: *IEEE Transactions on Biometrics, Behavior, and Identity Science*. 1, 2, p. 123-138 16 p.

On using document scanners for minutiae-based palmprint recognition

Aguado-Martínez, M., HernPalancar, J., Castillo-Rosado, K., Kauba, C., Kirchgasser, S. & Uhl, A., 2019, *Proceedings of the 24th Iberoamerican Congress on Pattern Recognition (CIARP 2019)*. Havana, Cuba, Vol. 11896. p. 219-229 11 p. (Springer Lecture Notes on Computer Science).

Longitudinal Finger Rotation in Finger-Vein Recognition

Prommegger, B., Kauba, C. & Uhl, A., 10 Oct 2018, *2018 International Conference of the Biometrics Special Interest Group, BIOSIG 2018*. Bromme, A., Uhl, A., Busch, C., Rathgeb, C. & Dantcheva, A. (eds.). Institute of Electrical and Electronics Engineers Inc., 8553036. (2018 International Conference of the Biometrics Special Interest Group, BIOSIG 2018).

The Two Sides of the Finger - An Evaluation on the Recognition Performance of Dorsal vs. Palmar Finger-Veins

Kauba, C., Prommegger, B. & Uhl, A., 10 Oct 2018, *2018 International Conference of the Biometrics Special Interest Group, BIOSIG 2018*. Bromme, A., Uhl, A., Busch, C., Rathgeb, C. & Dantcheva, A. (eds.). Institute of Electrical and Electronics Engineers Inc., 8553277. (2018 International Conference of the Biometrics Special Interest Group, BIOSIG 2018).

Focussing the beam - A new laser illumination based data set providing insights to finger-vein recognition

Kauba, C., Prommegger, B. & Uhl, A., 2 Jul 2018, *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018*. Institute of Electrical and Electronics Engineers Inc., 8698588. (2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018).

Multi-perspective finger-vein biometrics

Prommegger, B., Kauba, C. & Uhl, A., 2 Jul 2018, *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018*. Institute of Electrical and Electronics Engineers Inc., 8698558. (2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018).

Near-infrared illumination add-on for mobile hand-vein acquisition

Debiasi, L., Kauba, C., Prommegger, B. & Uhl, A., 2 Jul 2018, *2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018*. Institute of Electrical and Electronics Engineers Inc., 8698575. (2018 IEEE 9th International Conference on Biometrics Theory, Applications and Systems, BTAS 2018).

Identifying the origin of Iris images based on fusion of local image descriptors and PRNU based techniques

Kauba, C., Debiasi, L. & Uhl, A., 29 Jan 2018, *IEEE International Joint Conference on Biometrics, IJCB 2017*. Institute of Electrical and Electronics Engineers Inc., p. 294-301 8 p. (IEEE International Joint Conference on Biometrics, IJCB 2017; vol. 2018-January).

PROTECT Multimodal DB: a multimodal biometrics dataset envisaging Border Control

F.Sequeira, A., Ferryman, J., Chen, L., Galdi, C., Dugelay, J.-L., Chiesa, V., Uhl, A., Prommegger, B., Kauba, C., Kirchgasser, S., Grudzień, A., Kowalski, M., Szklarski, Ł., Maik, P. & Gmitrowicz, P., 2018, *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'18)*. Darmstadt, GERMANY: Gesellschaft für Informatik, Vol. 1. 8 p.

Robustness of Finger-Vein Recognition

Kauba, C. & Uhl, A., 2018, *Hand-Based Biometrics: Methods and Technology*. London, UK: IET Biometrics, p. 193-216

On the feasibility of classification-based product package authentication

Schraml, R., Debiasi, L., Kauba, C. & Uhl, A., 2 Jul 2017, *2017 IEEE Workshop on Information Forensics and Security, WIFS 2017*. Institute of Electrical and Electronics Engineers Inc., p. 1-6 6 p. (2017 IEEE Workshop on Information Forensics and Security, WIFS 2017; vol. 2018-January).

Identifying Iris Sensors from Iris Images

Debiasi, L., Kauba, C. & Uhl, A., 2017, *Iris and Periocular Biometric Recognition*. London, UK: IET Biometrics, p. 359-382 24 p.

Towards drug counterfeit detection using package paperboard classification

Kauba, C., Debiasi, L., Schraml, R. & Uhl, A., 1 Jan 2016, *Advances in Multimedia Information Processing – 17th Pacific-Rim Conference on Multimedia, PCM 2016, Proceedings*. Chen, E., Tie, Y. & Gong, Y. (eds.). Springer Verlag, p. 136-146 11 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 9917 LNCS).

Fingerprint Recognition under the Influence of Sensor Ageing

Kauba, C. & Uhl, A., 2016, In: *IET Biometrics*. p. 245-255

Pre-processing cascades and fusion in finger vein recognition

Kauba, C., Reissig, J. & Uhl, A., 2014, *Proceedings of the International Conference of the Biometrics Special Interest Group (BIOSIG'14)*.

Activities

Public Perceptions and Preferences towards ATMs with Biometric Authentication in Austria

Kauba, C. (Speaker)

18 Sept 2019 → 20 Sept 2019

Michigan State University

Kauba, C. (Visiting researcher)

3 Jun 2019 → 3 Aug 2019

CENATAV, Havanna, Kuba
Kauba, C. (Visiting researcher)
25 Feb 2019 → 16 Apr 2019

University of New South Wales
Kauba, C. (Visiting researcher)
10 Oct 2018 → 21 Dec 2018

The Two Sides of the Finger - An Evaluation on the Recognition Performance of Dorsal vs. Palmar Finger-Veins
Kauba, C. (Presenter)
27 Sept 2018 → 28 Sept 2018

Advanced Variants of Feature Level Fusion for Finger Vein Recognition
Kauba, C. (Speaker)
21 Sept 2016 → 23 Sept 2016

PRNU-Based Image Alignment for Defective Pixel Detection
Kauba, C. (Presenter)
6 Sept 2016 → 9 Sept 2016

Image Segmentation Based Visual Security Evaluation
Kauba, C. (Speaker)
20 Jun 2016 → 23 Jun 2016

Robustness Evaluation of Hand Vein Recognition Systems
Kauba, C. (Presenter)
9 Sept 2015 → 11 Sept 2015

Sensor Ageing Impact on Finger-Vein Recognition
Kauba, C. (Presenter)
19 May 2015 → 22 May 2015

Projects/Portal

IDENTITY: Computer Vision Enabled Multimedia Forensics and People Identification
Uhl, A. (Principal Investigator), Debiasi, L. (Co-Investigator), Hofbauer, H. (Co-Investigator), Kauba, C. (Co-Investigator), Schraml, R. (Co-Investigator), Uhl, A. (Co-Investigator) & Wimmer, G. (Co-Investigator)
1/01/16 → 31/12/19

Erkennung von gefälschten Medikamentpackungen mit forensischen Methoden
Uhl, A. (Principal Investigator), Debiasi, L. (Co-Investigator), Kauba, C. (Co-Investigator) & Schraml, R. (Co-Investigator)
1/10/15 → 30/05/16

AUTFingerATM: Finger-basierte Biometrie an österreichischen Geldautomaten
Uhl, A. (Principal Investigator), Kauba, C. (Co-Investigator) & Kwitt, R. (Co-Investigator)
1/12/17 → 30/11/20

PROTECT: Pervasive and User Focused BiomeTrics BordEr ProjeCT
Uhl, A. (Principal Investigator), Debiasi, L. (Co-Investigator), Kauba, C. (Co-Investigator), Kirchgasser, S. (Co-Investigator) & Schraml, R. (Co-Investigator)
1/09/16 → 31/08/19