UNIVERZITET U SARAJEVU -
ELEKTROTEHNIČKI FAKULTET
S a r a j e v o
Zmaja od Bosne bb

Na osnovu čl. 5. i 6. Odluke Vijeća Univerziteta u Sarajevu - Elektrotehničkog fakulteta o definiranju procedure realizacije naučnoistraživačkih seminara na trećem ciklusu studija – doktorskom studiju (broj: 01-503/21 od 01.02.2021. godine) i Odluke Vijeća Univerziteta u Sarajevu - Elektrotehničkog fakulteta (broj: 01-5066/26 od 02.11.2026. godine), Univerzitet u Sarajevu - Elektrotehnički fakultet, daje

**O B A V I J E S T**
o odbrani seminara

Student trećeg ciklusa studija - doktorskog studija, Vahidin Hasić, magistar elektrotehnike - diplomirani inženjer elektrotehnike, branit će Naučnoistraživački seminar 2.1. pod naslovom "AA-SHAP: Superpixel Affinity for Explainable Image Classification".

Seminar je izrađen u saradnji sa akademskom savjetnicom, dr. Senkom Krivić, vanrednom profesoricom Univerziteta u Sarajevu - Elektrotehničkog fakulteta.

Odbrana seminara održat će se 19. novembra 2026. godine (četvrtak), s početkom u 14:00 sati, u prostorijama Univerziteta u Sarajevu - Elektrotehničkog fakulteta (Sala 2-01).

Odbrana seminara je javna.

Obavijest o odbrani i sažetak seminara, oglašavaju se na oglasnim pločama i internet stranici Univerziteta u Sarajevu - Elektrotehničkog fakulteta.

Oglašeno:
Sarajevo, 06.11.2026. godine

**SAŽETAK**

**ABSTRACT**

Explainable AI (XAI) is essential for building trust in Deep Neural Networks (DNNs). SHAP (SHapley Additive exPlanations) is a well-known XAI technique for attributing feature importance, but it struggles with exponential computational complexity as the number of features increases. Various approximation methods have been suggested, but they compromise SHAP's theoret ical principles. We introduce AA-SHAP, a novel approach that derives superpixel affinity from the explained model's internals to identify and group superpixels. AA-SHAP constructs a relevance-consistency affinity between superpixel interdependence, enabling much faster SHAP calculations on a reduced set of meta-superpixels while outperforming previous methods in expla nation faithfulness. Exact Shapley values are computed on the reduced meta-superpixel game, preserving all axiomatic guaran tees within the aggregated feature space. Evaluated across multiple datasets, both convolutional and transformer classification architectures show that AA-SHAP produces more faithful attributions than competing methods while improving computational speed and maintaining SHAP's theoretical axioms. The source code is available at https://github.com/vhasic/AA-SHAP.

