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The Role of Hemiwicking on the Shape of a Blood Drop Stain
SAMIRA SHIRI, KENNETH MARTIN, JAMES BIRD, Boston University — Blood pattern analysis (BPA) typically assumes that an elliptical stain is due to oblique drop impact. From the eccentricity of the elliptical stain – while also accounting for gravity and drag – the source and trajectory of the blood drops can be estimated. Yet, these models generally neglect any fluid motion following impact that could influence the shape of the stain. Here we demonstrate that under certain conditions on certain materials, a blood drop will undergo anisotropic hemiwicking. Through systemic experiments and modeling, we aim to better understand this phenomenon with the goal of ultimately decreasing the uncertainty in crime scene reconstruction.

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