

## MRI and CT Technical Terms

- **AIF (Arterial Input Function):** The concentration of contrast agent measured in a **major feeding artery** over time, which is necessary for calculating perfusion via deconvolution.
- **ASL:** MRI technique used to measure and visualize tissue perfusion in the brain. Non-contrast version of perfusion, labels arterial blood as it flows through the brain tissue. Only produces true CBF maps.
- **B0 (Zero-gradient image):** An anatomical MRI image taken in the **absence of diffusion gradients** used to correct for field inhomogeneities.
- **DCE (Dynamic Contrast Enhanced):** A perfusion technique that assesses **tissue kinetics** using continuous contrast injection and the steady-state formula.
- **DSC (Dynamic Susceptibility Contrast):** An MRI technique that tracks a **contrast bolus** to measure signal loss and quantify perfusion parameters.
- **DWI (Diffusion Weighted Imaging):** An MRI sequence sensitive to the **random motion of water**, used to visualize local tissue diffusion properties.
- **isoDWI:** The average of all **diffusion gradient direction images** within a specific diffusion shell (b-value).
- **Ke<sub>p</sub> (Rate constant):** The rate at which contrast agent **refluxes** from the extravascular extracellular space back into the vascular system.
- **K<sub>trans</sub> (Volume transfer constant):** Represents the rate of **contrast agent transfer** from the blood plasma to the extravascular extracellular space, reflecting capillary permeability.
- **LOI (Lack of Information) Probability:** A map indicating the degree to which the information content in a voxel is **insufficient** for reliable hemodynamic estimation.
- **MIP (Maximum Intensity Projection):** A visualization technique that projects the **highest intensity voxels** along a viewing path, often used for CT angiography.
- **Residue Function:** A mathematical function representing the fraction of tracer that **remains in the tissue** at a given time after a pulse injection.
- **Ve (Extravascular space):** The fractional volume of the **extravascular extracellular space** (EES) per unit volume of tissue.
- **V<sub>p</sub> (Plasma volume):** A parameter illustrating the magnitude of the **plasma volume** within a tissue volume.