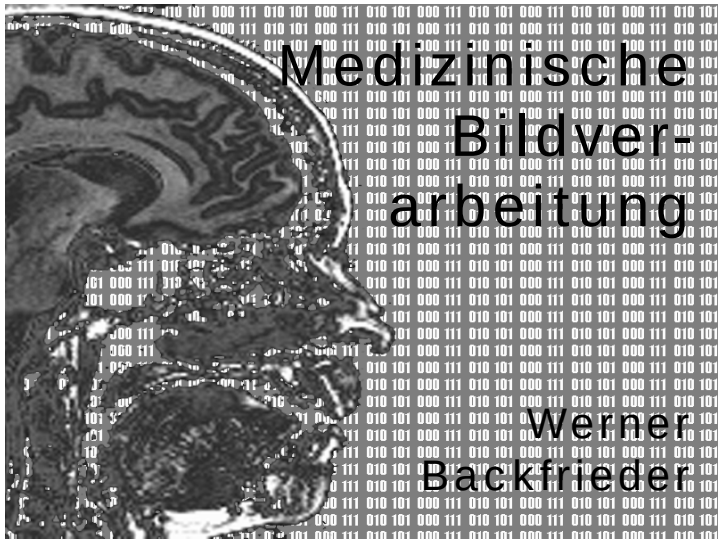
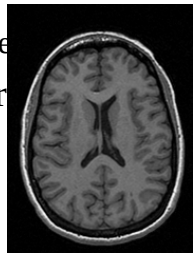


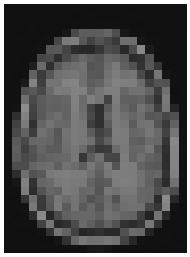
Medizinische Bildverarbeitung

Werner Backfrieder

Theoretische Grundlagen

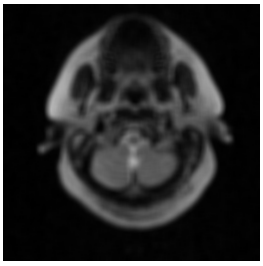
- Lineare Abbildungssysteme
  - Mathematische Grundlagen
  - Eigenschaften linearer Abbildungssysteme
- Digitalisierung
  - Eigenschaften digitaler Bilde
- Darstellung digitaler Bilder
  - Grauwertdarstellung
  - Farbräume





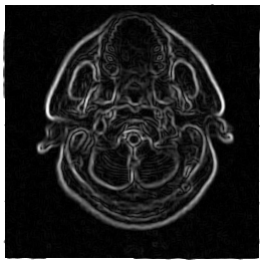
Bildverbesserung

- Filtern im Orts-und Frequenzraum
- Bildwiederherstellung



Low pass filter

original

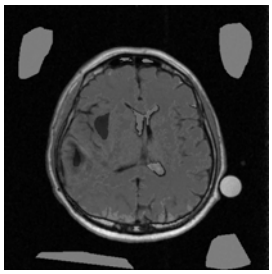


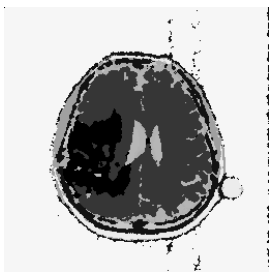
Sobbel filter

Vorlesungsinhalte

Bildbearbeitung

- Segmentierung
  - Kantenerkennung
  - Schwellwertbildung
  - binäre Morphologie
  - multispektrale Analyse

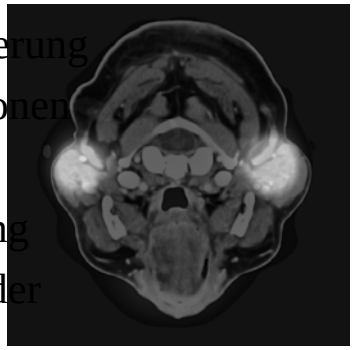




Vorlesungsinhalte

Bildfusion

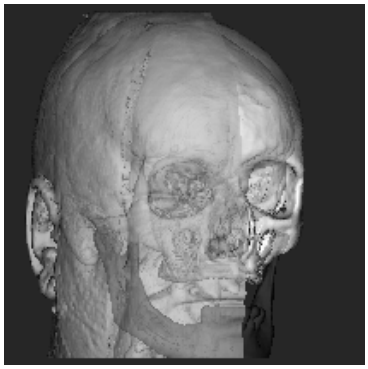
- Grundkonzepte der Registrierung
- Geometrische Transformationen
- Chamfer Matching
- Mutual Information Matching
- Darstellung fusionierter Bilder



Vorlesungsinhalte

Objektdarstellung

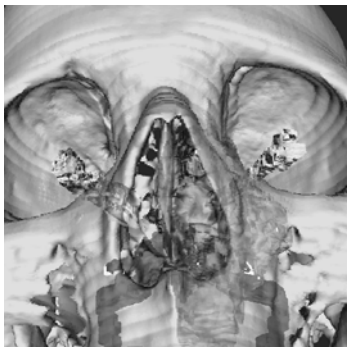
- Oberfächendarstellung
  - marching cubes
  - Delauny Triangulierung
- Rendering
  - volume rendering
  - surface rendering
  - texture mapping

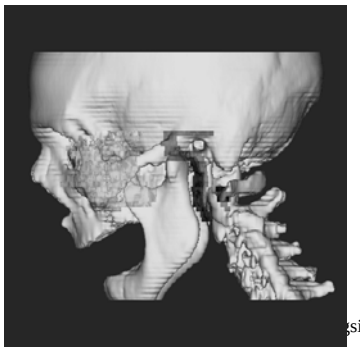


Vorlesungsinhalte

Klinische Anwendungen

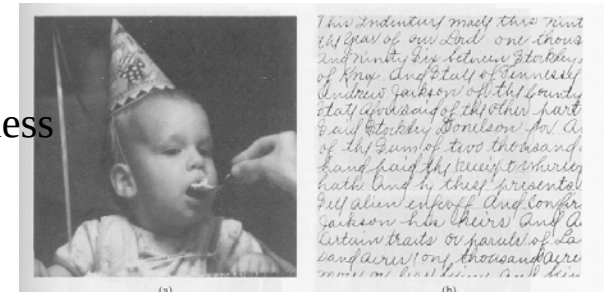
- Bestrahlungsplanung
- Operationsplanung
- Image Guided Surgery

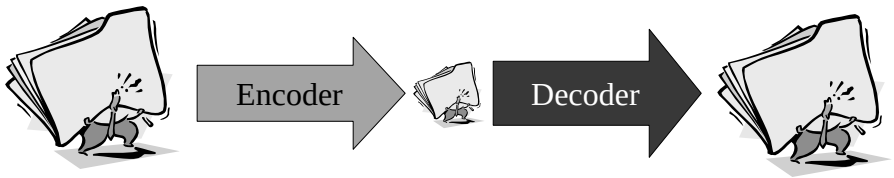




Kompression

- Redundanz
- Lossy<->Lossless
- jpeg





Texturanalyse

- Definition
- Texturmaße
- syntaktische Beschreibung