

**A Study of Measuring Intracranial Pressure Using a Non-Invasive Piezoelectric
Sensor**

Prenn Xuan Tran

Thesis submitted to the faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science
In
Mechanical Engineering

Christopher R. Fuller, Chair
Cory A. Papenfuss
Pablo A. Tarazaga

September 29, 2014
Blacksburg, VA

Keywords: intracranial pressure, finite element model, piezoelectric sensor, hoop strain,
Copyright © Prenn Xuan Tran

Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Prenn Xuan Tran

Description of item under review for fair use: Figure 1. Location for lumbar puncture technique. Lumbar Puncture, 2003, "Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health,," <http://medical-dictionary.thefreedictionary.com/Lumber+puncture>.

Report generated on: 10-09-2014 at : 16:49:56

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*

Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Prenn Xuan Tran

Description of item under review for fair use: Figure 2. Invasive ICP measurement locations. CrashMaster, 2011, "Severe Traumatic Brain Injury," <http://crashingpatient.com/trauma/severe-traumatic-brain-injury.htm/> - icp_monitoring.

Report generated on: 10-09-2014 at : 16:49:46

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*

Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Prenn Xuan Tran

Description of item under review for fair use: Figure 3. Transcranial doppler technique. Mayfield Clinic, 2013, "Subarachnoid hemorrhage," <http://www.mayfieldclinic.com/PE-SAH.HTM> - .U0bOsdwRUmE.

Report generated on: 10-09-2014 at : 16:49:50

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*