Clinician Decision Support (CDS) Dashboard: Extracting value from Electronic Medical Records

ICCHA SETHI

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 Computer Science

Harold Ray Garner, Chair
Naren Ramakrishnan
Wu-chun Feng

April 5, 2012

Blacksburg, Virginia

Keywords and phrases: electronic medical records, clinical decision support systems, text data mining, medical informatics
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: Iccha Sethi

Description of item under review for fair use: Figure 1. Potential Efficiency Savings With Adoption Of Electronic Medical Record (EMR) Systems [Hillstead et al. 2005] SOURCE: F. Girosi et al., Extrapolating Evidence of Health Information Technology Savings and Costs, Pub. no. MG-410 (Santa Monica, Calif.: RAND, 2005), sec. 4.2.6.


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

Description of item under review for fair use: Figure 2. Net Potential Savings (Efficiency Benefits Over Adoption Costs) For Hospital And Physician Electronic Medical Record (EMR) Systems Adoption During A Fifteen-Year Adoption Period (2004–2018) [Hillstead et al. 2005] SOURCE: F. Girosi et al., Extrapolating Evidence of Health Information Technology Savings and Costs (Santa Monica, Calif.: RAND, 2005)


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

Description of item under review for fair use: Figure 3. Barriers and possible interventions [Boonstra A et al. 2010]


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: against fair use

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

Description of item under review for fair use: Figure 4. General Model of CDSS [J. Reggia 1981; M. J. Lincoln 1999].


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: against fair use

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

Description of item under review for fair use: Figure 5. Overview of Taxonomy Axes. This figure illustrates how the 24 taxonomy axs are related to the CDSS workflow and to each other. The symbols denote human and possible human roles respectively [Sim et. al 2003].


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

Description of item under review for fair use: Figure 6. Description of the categories of the taxonomy of clinical decision support systems [Sim et. al 2003; Berlin et. al 2006].

Report generated on: 04-07-2012 at : 14:01:58

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: against fair use

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

Description of item under review for fair use: Figure 7. The diagram demonstrates the flow of control and flow of information within the MYCIN System. The three subprogram components are enclosed in boxes. Control passes from one sub program to another as shown by heavy arrows. Light arrows indicate program access to information used by the system. The program’s knowledge base is contained in a corpus of rules shown on the right [Shortliffe et. al 1976; Buchanan et. al 1984].

Report generated on: 04-07-2012 at : 14:04:47

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: against fair use
Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Iccha Sethi

Description of item under review for fair use: Figure 8. Flow chart describing the rule MONITOR which analyzes a rule and decides whether it applies in the clinical situation under consideration. Each condition in the PREMISE of the rule references some clinical parameter, and all such conditions must be true for the rule to be accepted [Shortliffe et al. 1976; Buchanan et al. 1984].

Report generated on: 04-07-2012 at 14:06:24

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: against 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: Iccha Sethi

Description of item under review for fair use: Figure 9. Typical DXplain session. The program first asks the user some basic questions and then the medical terms related to the patient’s condition. The show command is used to display the list of diseases which may explain these symptoms or terms [Barnett et. al 1987].

Report generated on: 04-07-2012 at : 14:08:45

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

Description of item under review for fair use: Figure 10. User Input screen where user can enter all the clinical features for the patient [Ramnarayan et. al 2003].

Report generated on: 04-07-2012 at : 14:09:15

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: against fair use

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

Description of item under review for fair use: Figure 11. Output screen where all the differential diagnoses are listed [Ramnarayan et. al 2003].

Report generated on: 04-07-2012 at : 14:09:47

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: against fair use

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